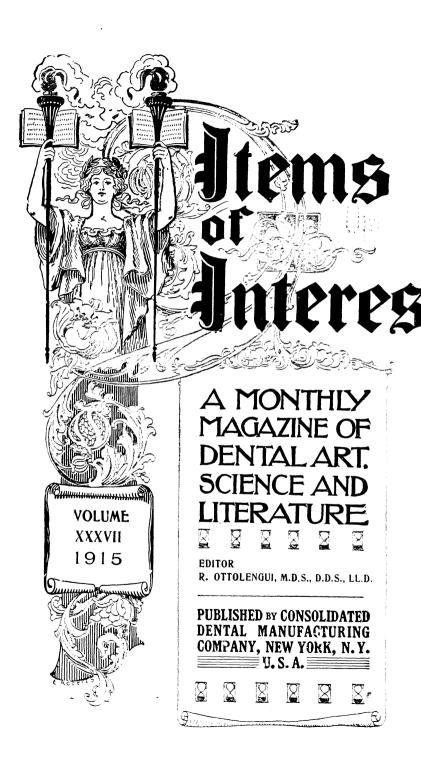
David Philipping CATE BY The of the D415



Index to Volume XXXVII

January number begins on page.....

February number begins on page	8t
March number begins on page	161
April number begins on page	
May number begins on page	
June number begins on page	401
July number begins on page	
August number begins on page	
September number begins on page	
October number begins on page	
November number begins on page	
December number begins on page	881
Abnormalities The Course of Haradity or	A I Do Common from Common of Prom
Abnormalities, The Causes of—Heredity or Environment, 86.	Amœba in Dry Smears, from Cases of Pyorrhea, Note on Staining, 891. Amœbæ in Dry Smears, from Cases of Pyorrhea, The Identification of, 401. Amœba Theory, 405.
Abnormal Teeth, 813. Abscesses, 934.	Amæbæ in Dry Smears, from Cases of Pyor-
Abutments, 424, 425. Abutments in Fixed Bridgework, 425.	Amæbæ in Pyorrheal Pockets, 81.
Abutments in Fixed Bridgework, 425.	Amœba Theory, 405. Anæmia, 774.
Academy of Stomatology, 661. Accident with Conductive Anesthesia, An, 659.	61
Active Force in Retention, 904	Anatomy of Dentin, 579.
Adaptability of Connective Tissue, 163.	Anema, Dr. R., Urgent Appeal for a Special
Action of Bacteria, 584. Active Force in Retention, 904. Adaptability of Connective Tissue, 163. Address by Charles W. Eliot, LL.D., President Emeritus Harvard University, 9. Address by Donald M. Gallie, D.D.S., President National Dental Association, 14.	Anatomy of Dentin, 579. Anatomy of Nerve Foramina, 645. Anema, Dr. R., Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in
Address by Donald M. Gallie, D.D.S., Presi-	of the Face and Jaws Sustained in
Address by Dr. Milton J. Rosenau, Harvard	this War, 738. Anesthesia, An Accident with Conductive,
Address by Dr. Milton J. Rosenau, Harvard University, 12. Address by Dr. William J. Gallivan, Commissioner of Health, and Chief of Bureau of Child Hygiene, Boston, 21. Address by Edward F. McSweeney, 18.	659.
missioner of Health, and Chief of	Anesthesia in Operative Dentistry, Local, 641.
Bureau of Child Hygiene, Boston, 21. Address by Edward F. McSweeney, 18.	Anesthesia, Local, 955. Anesthesia, Oral, 231.
Address by Mr. J. Howard Mummery, M.R. C.S., L.D.S., of London, England, 261. Address by Mr. Thomas Alexander Forsyth,	Anesthesia, Reflex, 191. Angle's Die Occlusionsanomalien Der Zahne,
C.S., L.D.S., of London, England, 261. Address by Mr. Thomas Alexander Forsyth.	230.
11.	Announcements of Barrett and Smith, 461. Announcements of Bass and Johns, The, 460. Anti-Narcotic Law, Harrison, 308. Antiseptic Canal Operations, 629.
Address by the Hon. James M. Curley, Mayor of Boston, 7.	Anti-Narcotic Law, Harrison, 308.
Address by William Simon, of the Baltimore	Antiseptic Canal Operations, 629. Antiseptics Useless in the Mouth, 616.
College of Dental Surgery, 263. Address, The Fresident's, 694.	*Apical Area, 504.
Adrenalia Chlorida 107	Apical Cementum, 608. Apical End, 618.
Advantages of Rosin, 582. Advantages of Rosin, 582. Advisory Board for Dental College, Name, 960. Alabama Dental Association, 77, 151, 233, 315. Albray, Dr. Raymonde A., Discussion, 299.	Apical Foramen, 838.
Alabama Dental Association, 77, 151, 233, 315.	Apical Foramen, 838. Apical Foramina with Gutta Percha and the Regeneration of Bone Thereabout, The
Alcoholism, 90.	Sealing of, 859.
Alumni Association of the University of Buf-	Apices, 862.
Alconorism, 90. Alconorism, 90. Alumni Association of the University of Buffalo, Dental Department, 159. Alveolaris with Succinimide of Mercury, The Treatment of Pyorrhea, 241. Alveolar Process, The, 165. American Academy of Dental Science, Boston, Mass. Memorial to Dr. James Truman, 548.	Apicoectomy, 762. Apologies to Dr. Buckley, Corrections with, 63. Apparatus and Instruments Used in Root
Alveolar Process. The. 165.	W1. 500
American Academy of Dental Science, Boston,	Appeal for a Special Dental Hospital Fund
	Appeal for a Special Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in this War, Urgent, 738. Application of the Chayes Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal
American Institute of Dental Teachers, 77, 800, 959. American Society of Orthodontists, 23, 86, 270, 440, 519, 553, 554, 661, 748, 819,	Sustained in this War, Urgent, 738.
American Society of Orthodontists, 23, 86,	Parallelodrill and Attachments in the
270, 440, 519, 553, 554, 661, 748, 819, 903.	Conservation of the Common Reciprocal
American Society of Orthodontists, Discus-	Conservation of the Common Reciprocal Functions of the Teeth Which Are Used as Piers for Bridgework, The, 892.
sion of Paper of Dr. Ottolengui, 23. Discussion of Dr. Woodruff's Paper, The	Approximal Contact, 700. Arch, A New Method of Attachment for the
Causes of Abnormalities. Heredity or	Loop 810
Environment, 271. Discussion on the Paper of Dr. Kemple,	Arizona State Dental Society, 77, 151, 233
519.	315, 397, 472, 553, 797.
Discussion on the Paper of Dr. Grieves,	Arguments in Favor of Early Treatment, 441. Arizona State Dental Society, 77, 151, 233. 315, 397, 472, 553, 797. Arkansas Examination, 400. Arkansas State Dental Association, 77, 151,
Ames' Copper Cement, 209.	233, 315, 397.
	•

Association of Military Denies
Asylums, 283.
Atmospheric Pressure, 905.
Attachment for the Loop Arch, A New
Method of, 819.
Attachments, 426.
Attachments in the Conservation of the Common Reciprocal Functions of the Teeth
Which Are Used as Piers for Bridgework, The Application of the Chayes
Parallelometer, the Parallelodrill, and, 892. Author's Views on Caries, The, 137. Bacteria, 584.
Bacterial Forms, 89.
Bacteriology of Pyorrhea, 766.
Baker, R. D., M.D., Discussion, 533.
Barbour, F. W., D.D.S., Operating Without Plain, 561.
Barrett and Smith, 461, 463.
Barry, Dr. Walter F., Discussion, 292, 293.
Bass and Johns, 460.
Beam, Dr. F. N., A Case of Severe Hemorrhage After Extraction, 186.
Beling, C. C., M.D., Discussion, 534.
Berger, A., D.D.S., An Accident with Conductive Anesthesia, 659.
Best, Elmer S., D.D.S., The Responsibility of the Dentist in the Care of Pulpless Teeth, 498.
Address, 606.
Discussion, 625. Address, 606.
Discussion, 625.
Best's, Dr., Paper, Discussion of, 606.
Bicuspid Stress, 897.
Black Copper Cement, 211.
Black, Dean Greene Vardiman, Memořial
Resolution Adopted by the Faculty of
the Dental School on Thursday Evening, September 23, 1915, at a Special
Meeting Convened to Commemorate the
Life and Services of, 871.
Black, Arthur D., A.M., D.M., D.D.S., Operactive Procedures in Relation to Dental
Caries and Diseases of the Investing active Procedures in Relation to Dental Caries and Diseases of the Investing Tissues, 936.

Black, Dr. Greene Vardiman, 788, 872.
Black, Dr. G. V., In Memory of, 957.
Blind Abscesses, 839.
Blood Findings in 162 Consecutive Cases of Chronic Oral Infection Associated with Teeth, 912.
Blum, Dr. Theodore, Discussion, 291.
Bone, 163, 164.
Bone Development in Retention, 905.
Bone Plating and Bone Grafting, 35.
Bones Produced by Orthodontic Treatment, Some Morphological Changes in the Jaw, 161. Some Morph Jaw, 161. Thereabout, Some Motipological Changes in the Jaw, 161.

Bone Thereabout, The Sealing of Apical Foramina with Gutta Percha and the Regeneration of, 859.

Book Reviews: Angle's Die Occlusionsanomalien Der Zahne, 230.

Oral Anesthesia, 231.

Boston, Dental Dispensaries in, 227.

Bridge, 418, 419.

Bridgeport, Dental Hygienists at Work in the Public Schools of, 141.

Bridgework, 354, 416, 418, 419, 425, 620.

Bridgework Conducive to Health and the Instruments for Constructing 1t, 415.

Bridgework Defined and Classified, 418.

Bridgework, The Application of the Chayes Parallelometer, the Parallelodrill and Attachments in the Conversation of the

Around the Table, 65, 147, 219, 309, 392, 465, 540, 633, 714, 781, 865, 949.

Arrest of Development, 92.

Arthritis, 772.

Arthritis, Oral Osteitis in Its Relation to, 487.

Arthritis and Discussion on Root Canal Treatment, Review of, 627.

Asepsis, 642.

Asepsis in Root Canals, 602.

Aseptic Root Operation Described, 511.

Ash, Dr., Discussion, 377.

Association of Military Dental Surgeons, 800.

Asylums, 283.

Common Reciprocal Functions of the Teeth Which Are Used as Piers for, 892. 892.
Bridgework, The Principles, Functions and Construction of Saddles in, 831.
Broken Instruments in Canals, 745.
Brush, 340.
Brush Day in the Public Schools of New York City, Dental Hygiene Week and Tooth, 536.
Brush Dilustrations Description of Tooth, 371. Brush Illustrations, Description of Tooth, 371.
Brushing Lower Teeth, 337.
Brushing Upper Teeth, 337.
Brush, What Shall We Do with the Tooth, 372.
Buckley, Dr., Corrections, with Apologies to,
63.
Buckley's Posts 562, 565 Buckley's Paste, 563, 565. Burbridge, Dr. Hereward, 873. Bust of the Saviour, The Kingsley Marble, 306. Calcium Chloride, Potassium Iodide and Thyroid Gland, 187. Calcium Matabolism, 688.
Callahan, J. R., D.D.S., Root Canal Freparation, 567.
Rosin Solution in Root Canals, 579. Rosin Solution in Root Canals, 579.
Discussion, 605.
Callahan's, Dr., Paper, Discussion on, 598.
Callahan's, Dr., Paper, Discussion on, 598.
Callahan's Methods, 631.
Canal Filling, Root, 801.
Canal Fillings, 583, 585, 629.
Canal Fillings, The Rationale of Immediate Root, 481.
Canal Preparation, Root, 567.
Canals, 570, 577, 586, 745, 806, 839.
Canals, Paste for Filling Root, 484.
Canals, Rosin Solution in Root, 579.
Canals Which Cannot Be Filled, Root, 806.
Canals Which Cannot Be Filled, The Treatment and Filling of Root, 811.
Canal Treatment, 837.
Canal Treatment, Review of Articles and Discussions on Root, 627.
Canal Treatment, The Problem of Root, 742.
Cantilever Bridge, 419. Canal Treatment, The Frontem of Root, 742.
Cantilever Bridge, 419.
Cardiac Failure, 729.
Care of Bridgework, 354.
Care of Pulpless Teeth, The Responsibility of the Dentist in the, 498.
Care of the Mouth, Instructions for the Home, 356. Caries, 121, 134, 137.
Caries and Diseases of the Investing Tissues,
Operative Procedures in Relation to
Dental, 936.
Caries in Schools, 59.
Carving Wax Inlays, 116.
Case of Severe Hemorrhage After Extraction, Case of Severe Hemorrhage After Extraction,
A, 186.
Cases of Chronic Oral Infection Associated
with Teeth, Blood Findings in 162 Consecutive, 912.
Cases of Excementosis, 809.
Cases of Pyorrhea, Note on Staining Amœba
in Dry Smears, From, 891.
Cases of Pyorrhea, The Identification of
Amœbæ in Dry Smears, From, 401. Cast, 834.
Casto, Dr. F. M., Discussion, 908, 909.
Cause of Pyorrhea Alveolaris? Is Tartar a,
The Logical Test Applied, 881.
Cause of Pyorrhea, The, 884.
Cause of Abnormalities, The—Heredity or Causes of Abnormalities, Environment, 86.
Cause, Their Treatment and Systemic Effect;
Mouth Infections, 758.
Caustics, 572, 599.
Caustics, 572, 599. Caustics, 572, 599.
Cell Metabolism, 905.
Cement Chemistry, Copper, 209.
Central Dental Association of Northern New
Jersey, 161, 487, 532, 837, 849.
Central Dental Association of Northern New
Jersey.
Discussion of Dr. Darling's Jersey. D Paper, 532. Discussion of Paper by Dr. M. L. Rhein, 849.

Contribution by J. D. Patterson, D.D.S., Kansas City, Mo., 330.
Contribution by John Oppie McCall, D.D.S., Buffalo, N. Y., 326.
Contribution by M. L. Rhein, M.D., D.D.S., New York City, 336.
Contribution by Paul R. Stillman, D.D.S., New York City, 334.
Contribution by R. R. Johnston, D.D.S., Pittsburgh, Pa., 327.
Copper Band to Facilitate Use of Rubber Dam, 569.
Copper Cement Chemistry, 209. Changes in the Jaw Bones Produced by Orthodontic Treatment, Some Morpho-Changes in the Jaw Bones Produced by Urthodontic Treatment, Some Morphological, 161.

Characteristics of Connective Tissue, 163.
Chatanooga Dental Society, 80.
Chayes, Herman E. S., D.D.S., Bridgework Conducive to Health and the Instruments for Constructing It, 415.

The Principles, Functions and Construction of Saddles in Bridgework, 831.

"The Application of the Chayes Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal Functions of the Teeth Which Are Used as Piers for Bridgework," 892.

Chemistry, Copper Cement, 209.
Chidgen and the Work Which It May Accomplish, The Forsyth Dental Infirmary for, 58.

Children, Dedication of the Forsyth Dental Infirmary for, 58.

Children Oral Infection Associated with Teeth, Blood Findings in 162 Consecutive Copper Cement Chemistry, 209. Correct Construction of Saddles, 833. Correction, 279, 539, 955. Corrections, with Apologies to Dr. Buckley, Corrections, with Appropriate 63.

Correct Treatment of Fulpless Teeth Must Eliminate the Possibility of Periapical Reinfection, The, 837.

Correspondence: Concerning the Death Attributed to Novocain, 874. tributed to Novocain, 874.
Correction, 955.
Cracking Nuts with the Teeth, 785.
Dental Dispensaries in Boston, 227.
Dental Nurses, 229.
Extraction of Wisdom Teeth, 953.
Forsyth Dental Infirmary, The, 225.
Letter from Dr. Milo Hellman, 471.
Local Anesthesia, 955.
Treatment of Impacted Third Molars. Infirmary for, 1.
Chronic Oral Infection Associated with Teeth,
Blood Findings in 162 Consecutive
Cases of, 912.
Clark, Dr. Harold, The New Gospel of
Health According to the Dentist, 131.
Discussion, 296, 304.
Clark's, Dr., Faper, Discussion of, 297.
Classification of Crowded Wisdom Teeth, 592.
Cleansing, 940. classincation of Crowded Wisdom Teeth, 592. Cleansing, 940, Cleansing Canals, 570, 571, 573. Cleansing of Teeth, Instructions to Patients in Regard to the, Foreword, 321. Cleansing the Brush, 340. Climate, 91. Treatment of Impacted Third Molars, 786. Course of Instruction Given by College of Dentistry, University of Illinois, Free, 157. Cracking Nuts with the Teeth, 785. Cretinism, 673. Cretinism, 673.
Criminality, 93.
Criticism of a Mouth Hygiene Education Film, 485.
Crouse, Dr. J. N., 551.
Crown and Bridgework, 416, 761.
Cure for Pyorrhea Is No New Thing in Dentistry, A, 403.
Curley, Hon. James M., Mayor of Boston, Address by the, 7.
Curved Root Canals, 604.
Cuspid Stress, 897. Climate, 91. Clinicians and Essayists of the Panama-Pacific Dental Congress, Rules Governing, 153. Dental Congress, Rules Coloranas, 27.
Cocain, 727.
Cocain, Observations on the Relative Toxicity of Novocain and, 721.
Coleman, Dr. P. S., "Fright," 189.
College of Dentistry, University of Illinois,
Free Course of Instruction Given by, Colorado State Dental Association, 151, 233, 315, 397, 472, 694, 700, 705.
Comments on Conductive Anesthesia, 655. Comments on Conductive Anesthesia, 655. Complex Bridge, 418. Compound Bridge, 418. Concerning the Death Attributed to Novocain, 874. Conductive Anesthesia, 650, 655. Conductive Anesthesia, An Accident with, 659. Conductive State Dental Association, 77, 151, 923, 215 283, 315.
Connective Tissue, 163.
Consecutive Cases of Chronic Oral Infection
Associated with Teeth, Blood Findings Associated with Leeth, Blood Findings in 162—912.

Conservation of the Common Reciprocal Functions of the Teeth Which are Used as Fiers for Bridgework, The Application of the Chayes Parallelometer, the Parallelometer of the Construction of the Question of Early Treatment of Malocclusion, A, 440.

Constructing It, Bridgework Conducive to Health and the Instruments for, 415.

Construction of Saddles in Bridgework, The Principles, Functions and, 831.

Contribution by A. C. Hamm, D.D.S., Denver, Col., 328.

Contribution by Andrew J. McDonagh, D.D.S., Toronto, Can., 329.

Contribution by Austin F. James, D.D.S., Chicago, Ill., 334.

Contribution by T. R. Ottolengui, New York, Prophylaxis During Orthodontic Treatment, 365. in 162-912. Prophylaxis During Orthodontic Treatment, 365.

Contribution by F. H. Skinner, D.D.S., Chicago, Ill., 331.

Contribution by Gillette Hayden, D.D.S., Columbus, Ohio. 324.

Contribution by Grace Rodgers Spalding, D.D.S., Detroit, Mich., 322.

Daly, Dr. Wilbur, Discussion, 184.
Dangers of Local Anesthesia, 656.
Darling, Byron C., A.B., M.D., Oral Osteitis
in Its Relation to Arthritis, 487.
Darling's, Dr., Paper, Discussion of, 532.
Day in the Public Schools of New York City,
Dental Hygiene Week and Tooth Brush, Death Attributed to Novocam, Concerning ---, 874.

Decayed Teeth, Restoration of the Normal Masticatory Function of, 98.
Dedication of the Evans Dental Institute, 245.
Dedication of the Forsyth Dental Infirmary for Children, 1.
Deduction from Examination of Skulls, 752.
Deformity and Dental Disease, The Relation of the Internal Secretory Organs to Malocclusion, Facial, 661. Death Attributed to Novocain, Concerning the, Malocclusion, Facial, 661.

Degeneration, 90.
Delta Sigma Delta Fraternity, 480.
Dental Caries, 133.
Dental Caries and Diseases of the Investing Tissues, Operative Procedures in Relation to 936.

Dental Commissioners of Connecticut, 480, 880.
Dental Disease, The Relation of the Internal Secretory Organs to Malocclusion, Facial Deformity, and, 661.
Dental Dispensaries in Boston, 227.
Dental Dispensaries in Boston, 227.
Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in This War, Urgent Appeal for a Special, 738.
Dental Hygiene Week and Tooth Brush Day in the Public Schools of New York City, 536. City, 536.

Dental Hygienist, 760. Dental Hygienist in Public Institutions, The, 120. Dental Hygienists, 129.
Dental Hygienists at Work in the Public Schools of Bridgeport, 141.
Dental Infirmary for Children and the Work Which It May Accomplish, The For-Dental Infirmary for Children, Dedication of Dental Infirmary for Children, Dedication of the Forsyth, 1.

Dental Infirmary, The Forsyth, 225.
Dental Institute, Dedication of the Evans, 245.
Dental Nurses, 62, 229.
Dental Parallelometer, 427.
Dental Professions? What Is the Highest Function of the 409 Function of the, 409.
Dental Frophylaxis, 300, 386.
Dental Red Cross Fund, 559.
Dental Society of the State of New York, 239. Dentin, 579.
Dentin, 579.
Dentist in the Care of Pulpless Teeth, The Responsibility of the, 498.
Dentistry, A Cure for Pyorrhea Is No New Thing in, 403. Thing in, 403.

Dentistry in General Hospitals, 282.
Dentistry in Public Institutions, 280.
Dentistry, Local Anesthesia in Operative, 641.
Dentistry, The Evolution of. Address of Edward C. Kirk, D.D.S., Sc.D., LL.D., Dean of the School of Dentistry, 247.
Dentistry, The Greatest Problem of the Day in, 215. Dentistry, The Dentistry, The Greatest Froblem of the Day in, 215.

Dentists for the United States Army, Exam-inations of, 239, 558.

Dentist, The New Gospel of Health Accord-ing to the, 131.

Description of Tooth Brush Illustrations, 371. Development, 92. Dewey, Martin, M.D., D.D.S., Some Principles of Retention, 903. Discussion, 272, 909, 910, 911. Dewey's, Dr., Paper, Discussion of, 907. Digestive Disturbances, 773. Digestive Disturbances, 773.

Diphtheria Serum, 187.

Directions, Mouth Hygiene, 341.
Discussion of Dr. Best's Paper, 606.
Discussion of Dr. Clark's Paper, 297.
Discussion of Dr. Dewey's Paper, 907.
Discussion of Dr. Fones' Paper, 376.
Discussion of Dr. Hellman's Paper, 182.
Discussion of Dr. Kauffer's Paper, 53.
Discussion of Dr. Robinson's Paper, 828.
Discussion of Dr. Woodruff's Paper, The
Causes of Abnormalities, Heredity or
Environment, 271. Environment, 271. Discussion of Paper by Dr. M. L. Rhein, 849. Discussion of the Paper of Dr. Ottolengui, 23. Discussion of Dr. Callahan's Paper, 598. Discussion of Reflex Anesthesia, 287. Discussion on the Paper of Dr. Grieves, 748. Discussions on Root Canal Treatment, Review of Articles and, 627.
Disease, Mouth Infection and Systemic, 942.
Disease, Oral Sepsis as Related to Systemic, 930. Diseases of the Investing Tissues, Operative Procedures in Relation to Dental Caries and, 950.

Disease, The Relation of the Internal Secretory Organs to Malocclusion, Facial Deformity and Dental, 661.

Dispensaries in Boston, Dental, 227.
Dispensary, Eastman Dental, 733.

Dowsley, Dr. J. F., Address, 12.

The Forsyth Dental Infirmary, 225.

Drving Canals, 586. The Forsyth Dental Infirmary, 225.
Drying Canals, 586.
Dry Smears, from Cases of Pyorrhea, Note on Staining Ameba in, 891.
Dry Smears, from Cases of Pyorrhea, The Identification of Ameba in, 401.
Dubuque Dental Society, Memorial Resolution passed by the, Dr. James Leslie Taylor, 552.
Dye, Ernest C., A.B., D.D.S., What Shall We With the Tooth Brush? 372.

Early Extractions for Regulating Teeth, 590.
Early Treatment, 441.
Early Treatment of Malocclusion, A Consideration of the Question of, 440.
Eastman Dental Dispensary, 733.
Eby, Dr. Jos. D., Report of, 474.
Editorial: Correction, 539.
Corrections, with Apologies to Dr. Bucklev. 63. ley, 63.
Dental Hygiene Week and Tooth Brush
Day in the Public Schools of New York Day in the Public Schools of New York City, 536.

Dental Hygienists at Work in the Public Schools of Bridgeport, 141.
Dental Prophylaxis, 386.
Forsyth Dental Infirmary for Children and the Work Which It May Accomplish, The, 58.

Greatest Problem of the Day in Dentistry, The 215. The, 215. Harrison Anti-Narcotic Law, 308. Kingsley Marble Bust of the Saviour, The, 306. Medico-Chirurgical to Merge with the University of Pennsylvania, The, 863.

Mouth Infection and Systemic Disease, Panama-Pacific Dental Congress, The, 777. Review of Articles and Discussions on Root Canal Treatment, 627. Root Canal Treatment, 627.
Rôle of Endamœba Gingivalis in Pyorrhea, The, 460.
Sealing of Apical Foramina with Gutta Percha and the Regeneration of Bone Thereabout, The, 859.
Treatment of Pyorrhea from the Viewpoint of the Patient, The, 711.
Educational Film, Criticism of a Mouth Hygiene, 485. giene, 485. Effect, Their Cause, Treatment and Systemic, Mouth Infections, 758. Mouth Intections, 708.
Efficiency, 705.
Efficiency in Dentistry, 706.
Eliminate the Possibility of Periapical Reinfection, The Correct Treatment of Pulpless Teeth Must, 837.
Eliot, Charles W., LL.D., President Emeritus Harvard University, Address by, 9.
Dental Nurses. 229 Dental Nurses, 229. Emetin, 405. Emetin Error, The, 404 Emetin Treatment, 406. Endamœba Gingivalis in Pyorrhea, The Rôle Environment, Heredity or; The Causes of Abonment, normalities, 86 723, 730. 86. Epinephrin, 723, 730.
Error, The Emetin, 404.
Essayists of the Parama-Facific Dental Congress, Rules Governing Clinicians and, 153. Essential Factors in Bridgework, 419.
Essential Requirements in Canal Treatment,
The, 837.
Etiology of Root Abscesses, 934.
Evans Dental Institute, Dedication of the, 245.
Evans, the Late Thomas W., 258, 266.
Evil Results from Evil Bridgework, 620.
Evil Results of Lack of Approximal Contact, 700. Evils of College Infirmary Work, 621.
Evolution of Dentistry, The. Address of Edward C. Kirk, D.D.S., ScD., LL.D.,
Dean of the School of Dentistry, 247.
Examination of Dentists for the U. S. Army, 239, 558. Examination of Tooth Brushes, 803. Examination of 100m Brusnes, 800.
Excementosis, 809.
Exclusive Contributions: Accident with Conductive Anesthesia, An, 659.
Address by Charles W. Eliot, LL.D.,
President Emeritus Harvard University sity, 9.
Address by Donald M. Gallie, D.D.S.,
President National Dental Association,

Address by Dr. Milton J. Rosenau, Har-Address by Dr. Muton J. Rosenau, ----vard University, 12.
Address by Dr. William J. Gallivan, Commissioner of Health, and Chief of Bureau of Child Hygiene, Boston, 21.
Address by Edward F. McSweeney, 18.
Address by Mr. J. Howard Mummery, M.R.C.S., L.D.S., of London, England, 261 Address by Mr. Thomas Alexander For-Address by Mr. Thomas Alexander Forsyth, 11.
Address by the Hon. James M. Curley, Mayor of Boston, 7.
Address by William Simon, of the Baltimore College of Dental Surgery, 263.
Amæbæ in Pyorrheal Pockets, 81.
Criticism of a Mouth Hygiene Educational Film, 485. Cure for Pyorrhea Is No New Thing in Dentistry, A, 403.
Dedication of the Evans Dental Institute, 245 245.
Dedication of the Forsyth Dental Infirmary for Children, 1.
Eastman Dental Dispensary, 733.
Emetin Error, The, 404.
Evolution of Dentistry, The. Address of Edward C. Kirk, D.D.S., Sc.D., LL.D., Dean of the School of Dentistry, 247.
Identification of Anache in Dry Smears, from Cases of Pyorrhea, The, 401. Tartar a Cause of Pyorrhea Alveolaris? Is Tartar a Cause of Pyolinea Antonaio.
The Logical Test Applied, 881.
Late Thomas W. Evans, The, 266.
Local Anesthesia in Operative Dentistry, 641. Note on Staining Amœba in Dry Smears, from Cases of Pyorrhea, 891.
Observations on the Relative Toxicity of Novocain and Cocain, 721.
Operating Without Pain, 561.
Paste for Filling Root Canals, 484.
Problem of Root Canal Treatment, The, 742 Frophylaxis Symposium, A. Instructions to Patients in Regard to the Cleansing of Teeth. Foreword, the Cleansing of Teeth. Foreword, 321.
Contribution by Grace Rogers Spalding, D.D.S., Detroit, Mich., 322.
Contribution by Gillette Hayden, D.D.S., Columbus, Ohio, 324.
Contribution by John Oppie McCall, D.D.S., Buffalo, N. Y., 326.
Contribution by P. R. Johnston, D.D.S., Pittsburgh, Pa., 327.
Contribution by A. C. Hamm, D.D.S., Denver, Col., 328.
Contribution by Andrew J. McDonagh, D.D.S., Toronto, Can., 329.
Contribution by J. D. Patterson, D.D.S., Kansas City, Mo., 330.
Contribution by F. H. Skinner, D.D.S., Chicago, Ill., 331.
Contribution by Austin F. James, D.D.S., Chicago, Ill., 334.
Contribution by M. L. Rhein, M.D., D.D.S., New York City, 334.
Contribution by M. L. Rhein, M.D., D.D.S., New York City, 336.
Mouth Hygiene Directions. By Jules J. Sarrazin, D.D.S., New Orleans, 341.
Instructions for the Home Care of the Mouth. By Alfred C. Fones, D.D.S., Bridgeport, Conn., 356.
Prophlyaxis During Orthodontic Treatment. Contribution by Dr. R. Ottolengui, New York, 365.
Description of Tooth Brush Illustrations, 371.
Rationale of Immediate Root Canal Fill-321 Rationale of Immediate Root Canal Fill-ing, The, 481. Root Canal Filling, 801. Root Canals Which Cannot Be Filled, 806.

Treatment and Filling of "Root Canals Which Cannot Be Filled," The, 811.

Treatment of Pyorrhea Alveolaris with Succinimide of Mercury, The, 241. Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in This War, 738. What Is the Highest Function of the Dental Profession? 409. What Shall We Do with the Tooth Brush? 372. Brush? 372.

Exodontia: Case of Severe Hemo After Extraction, A, 186.

"Fright," 189.
Wisdom Teeth, 590.
Experiences with Analgesia, 564.
Experiences with Buckley's Paste, 565.
Experiments with Cocain, 727.
Experiments with Epinephrin, 730.
Extent of Caries in Schools, The, 59.
Extension for Frevention, 938.
Extracting Teeth, 607.
Extraction of Wisdom Teeth, 953.
Extraction, 187. Hemorrhage Extraction, 187.

Extraction, A Case of Severe Hemorrhage After, 186. Face and Jaws Sustained in This War, Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many Suf-ferers from Wounds of the, 738. Facial Deformity and Dental Disease, The Relation of the Internal Secretory Or-gans to Malocclusion, 661. F. D. I., 554.
Federspiel, Dr. M. N., Discussion, 25, 26, 528, 829, 909.
Feeding Infants, 684.
Fifth District Dental Society of the State of New York, 318.
Filling Between Teeth, 937.
Filled, Root Canals Which Cannot Be, 806.
Filled, The Treatment and Filling of Root Canals Which Cannot Be, 811.
Filling Canals, 746.
Filling of Canals in Abnormal Teeth, The, 813.
Filling of "Root Canals Which Cannot Be Filled," The Treatment and, 811.
Filling, Root Canal, 801.
Filling, Root Canals, Paste for, 484.
Filling, Root Canal, 501.
Filling, The Rationale of Immediate Root Canal, 481.
Filling Through Apical End, 618.
Filling Through Apical End, 618.
Filling, Triticism of a Mouth Hygiene Educational, 485. F. D. I., 554. tional, 485.
Findings in 162 Consecutive Cases of Chronic
Oral Infection Associated with Teeth,
Blood, 912. First Molars, 596. Fitzgerald, Wm. H., M.D., Reflex Anesthesia, 191.
Discussion, 293.
Florida State Dental Society, 77, 151, 233, 315, 397, 472, 478.
Floss Silk, 338, 362.
Fones, A. C., D.D.S., The Dental Hygienist in Public Institutions, 120.
Instructions for the Home Care of the Month, 356 Mouth, 356.
Discussion, 377, 378, 384.
Fones, Dr. Paper, Discussion of, 376.
Fones School for Dental Hygienists, 122.
Foramina, 583, 611, 645.
Foramina with Gutta Percha and the Regeneration of Bone Thereabout, The Sealing of Apical, 859.
Force of Muscular Pressure, 905.
Foreword. Instructions to Patients in Regard to the Cleansing of Teeth, 321.
Forsyth Dental Infirmary for Children and the Work which It May Accomplish, The, 58.
Forsyth Dental Infirmary for Children, Dedi-Mouth, 356.

Forsyth Dental Infirmary for Children, Dedication of the, 1.

Forsyth Dental Infirmary for Children, The,

477.

Forsyth Dental Infirmary, The, 19, 60, 225. Forsyth, Mr. Thomas Alexander, Address by, 11. Address, 12.
Forty-fourth Annual Meeting of the New Jersey State Dental Society. Discussion of Dr. Kauffer's Paper, 53.
Fowler, Chairman, Address, 53, 54, 286, 296. Discussion, 57, 289, 296.
Fowler, President, Address, 532.
Frahm, Frederick W., Ph.G., D.D.S., The Problem of Root Canal Treatment, 742.
Frazer, Dr., Discussion, 601.
Free Course of Instruction Given by College of Dentistry, University of Illinois, 157.
"Fright," 189.
Function of Decayed Teeth, Restoration of Address, 12. Function of Decayed Teeth, Restoration of the Normal Masticatory, 98. Function of the Dental Profession? What Is the Highest, 409.

Is the Highest, 400.
Functions and Construction of Saddles in Bridgework, The Principles, 831.
Functions of the Teeth Which Are Used as Piers for Bridgework, The Application of the Chayes Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal, 892.

Fundamental Principle of Retention, 903.
Fund, Dental Red Cross, 559.
Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in This War, Urgent Appeal for a Special Dental Hospital, 738.

Further Development of Ampelo Theory, 405. Further Development of Amœba Theory, 405.

Gallie, Donald M., D.D.S., Fresident National Dental Association, Address by, 14.
Gallivan, Dr. Wm. J. Commissioner of Health, and Chief of Bureau of Child Hygiene, Boston, Address by, 21.
Gelston, President, Address, 53, 286, 287, 288, 289, 290, 291, 304.
General Hospitals, 282.
Georgia State Dental Association, 315, 319, 397, 472.
Gillett, Dr. Henry W., 847. Discussion, 604, 850.

Gillett, Di

939. Gingivalis in Pyorrhea, The Rôle of Endamæba, 460.
Gingivitis Due to Faulty Dental Operations,

Gingivitis Due to Faulty Dental Operations, 940, 948, Golden Jubilee Meeting of the Missouri State Dental Association, The, 235. Gospel of Health According to the Dentist, The New, 131. Graham, Mr. Edward T. P., Address, 12. Greatest Problem of the Day in Dentistry, The, 215. Grieves, Dr. C. J., Discussion, 26, 32, 606, 753, 754, 755, 756, 757, 829. The Relation of the Internal Secretory Organs to Malocclusion, Facial Deformity and Dental Diseases, 661. Grieves, Dr., Discussion on the Paper of, 748. Grinley, Mr., Discussion, 381. Guardian of Health, Oral Prophylaxis, The,

200.

Gutta Percha and the Regeneration of Bone Thereabout, The Sealing of Apical Foramina with, 859. Gutta Percha Cone, 587. Gutta Percha Root Fillings, 585, 586.

Hamm, A.C., D.D.S., Denver, Col., Contributions by, 328.
Hane, C. F. A., D.D.S., Discussion, 535.
Harris, Hayden and 255, 264.
Harrison Anti-Narcotic Law, 308.
Harvard Dental Alumni Association, 80.
Hassler, Dr. J. W., Discussion, 55.
Hatcher, Robt. A., Drs. J. M. Levy and Observations on the Relative Toxicity of Novocain and Cocain, 721.

Hawley, Dr. C. A., Discussion, 525, 527, 751, 753, 829, 830.

Hayden and Harris, 255, 264.

Hayden, Gillette, D.D.S., Columbus, Ohio, Contribution by, 324.

Health According to the Dentist, The New Gospel of, 131.

Health and the Instruments for Constructing It, Bridgework Conducive to, 415.

Health, Oral Prophylaxis the Guardian of, 200.

Healthy Mouth, 399.

Hellman, Milo, D.D.S., Some Morphological Changes in the Jaw Bones Produced by Orthodontic Treatment, 161.

Discussion, 182.

Discussion, 182.

Letter froom, 471.

Hellman's, Dr., Paper, Discussion of, 182.

Hemorrhage After Extraction, A Case of Severe, 186.

Hemorrhage Several Hours After Extraction,

187.

Heredity, 94.
Heredity and Environment, 94.
Heredity and Environment, The Causes of Abnormalities, 86.
Highest Function of the Dental Profession?
What Is the, 409.
Histology of Apical Cementum, 608.
Hogan, Dr. Wm. J. Discussion, 287, 292.
Holmes, Dr. E. S., 314.
Home Care of the Mouth, Instructions for the, 356.
Horse Blood Serum, 188.
Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaw Sustained in This War, Urgent Appeal for a Special Dental, 738. Appeal for a Special Dental, 738.

Hospitals, 283.
Hospitals for the Insane, 283.
Howe, Dr. J. Morgan, 75.
Hyatt, Dr. T. P., Discussion, 379, 380, 383, How. Hyatt, Dr. 616.

Hydrochloric Acid in Canals, 600. Hygiene Directions, Mouth, 341. Hygiene, Educational Film, Criticism of a

Mouth, 485.

Hygiene Week and Tooth Brush Day in the
Public Schools of New York City,
Dental, 536.

Hygienists in Public Institutions, The Dental,

Hygienists at Work in the Public Schools of Bridgeport, Dental, 141. Hyporthyroidism, 674. Hypopituitarism, 676.

Idaho State Board of Dental Examiners, 480. Ideal Root Filling, The, 410. Identification of Amœbæ in Dry Smears, from Cases of Pyorrhea, The, 401. Illinois State Dental Society, 78, 152, 234, 237, 316, 398. Illustrations, Description of Tooth Brush, 371. Immediate Root Canal Filling, The Rationale of 481.

Immediate Root Canal Filling, The Rationale of, 481.

Impacted Molars, 529.
Impacted Teeth, 595.
Impacted Third Molars, Treatment of, 786.
Implantation, Physiologic and Mechanical, Root, 33.

Importance of Maintaining Asepsis, 642.
Importance of Mouth Cleanliness, 759.
Importance of Perfect Parallelism, 426.
Impossible to Fill All Canals, 806.
Impressions for Saddles, 833.
Incisal Stress, 896.
Indiana State Board of Dental Examiners, 479.

Indiana State 20013 479.
Indiana State Dental Association, 78, 152, 234, 316, 398.
Industrial Schools and Asylums, 283.

Infection, 610.
Infection and Systemic Disease, Mouth, 942.
Infection Associated with Teeth, Blood Findings in 162 Consecutive Cases of Chronic

Oral, 912. Infections, 947.

Infections, Mouth; Their Cause, Treatment and Systemic Effect, 758.
Infections Through Pulp Canals, 609. Infirmaries, 855.
Infirmary for Children and the Work Which
It May Accomplish, The Forsyth Dental, 58. Infirmary for Children, Dedication of the Forsyth Dental, 1. Infirmary, The Forsyth Dental, 225. Infirmary, The Forsyth Dental, 225.
Infirmary Work, 621.
Influence of Caries Upon Health, 121.
Influences of Alcoholism, 90.
Influences of Climate, 91.
Influences of Diet and Force of Mastication, 133. Influences of Saliva Upon Caries, 134. Influences of Syphilis, 90. Influences of Tuberculosis, 93. Inglis. Dr. Otto E., Discussion, 297. In Memoriam: American Academy of Dental Science, Boston, Mass. Memorial to Dr. James Truman, 548. Black, Dr. Greene Vardiman, 788, 872. Burbridge Dr. Harawed 272 Dr. James Truman, 548.
Black, Dr. Greene Vardiman, 788, 872.
Burbridge, Dr. Hereward, 873.
Crouse, Dr. J. N., 551.
Holmes, Dr. E. S., 314.
Howe, Dr. J. Morgan, 75.
In Memory of Dr. G. V. Black, 957.
Johnson, Eugene A., 719.
Luther, Dr. Ralph E., 313.
Melotte, Dr. George W., 794.
Memorial Resolution Adopted by the Faculty of the Dental School on Thursday Evening, September 23, 1915, at a Special Meeting Convened to Commemorate the Iife and Services of Dean Greene Vardiman Black, 871.
Memorial to Dr. Louis Jack, 549.
Memorial to Dr. Louis Jack, 549.
Memorial to Dr. W. Xavier Sudduth, 957.
Nones, Samuel Smith, D.D.S., 719.
Taylor, Dr. James Leslie. Memorial resolutions passed by the Dubuque Dental Society, 552.
Truman, James. D.D.S., I.I. D., 71

Iutions passed by the Dubuque Dental Society, 552.
Truman, James, D.D.S., LL.D., 71.
Turner, Thomas Edward, D.D.S., 74.
Walker, William Ernest, D.D.S., M.D., 73.
Weisse, Dr. Faneuil D., 640.
In Memory of Dr. G. V. Black, 957.
Inserting Gutta Fercha Cone, 587.
Institute, Dedication of the Evans Dental, 245.
Institutions, Dentistry in Public, 280.
Institutions, The Dental Hygienist in Public, 120. 120

Instructions Given by College of Dentistry, University of Illinois, Free Course of, 157.

Instructions for the Home Care of the Mouth, 356.

Instructions to Patients in Regard to the Cleansing of Teeth. Foreword, 321.
Instrumentation in Root Canals, 744.
Instruments for Constructing It, Bridgework Conducive to Health and the, 415.
Interesting Case Involving Defective Root

Filling, 929.

Filling, 929.

Internal Secretory Organs to Malocclusion,
Facial Deformity and Dental Disease,
The Relation of the, 661.

Introducing Rosin, 586.

Investing Saddle Patterns, 835.

Investing Tissues, Operative Procedures in
Relation to Dental Caries and Diseases
of the, 936.

Ionization, 852.

Iowa State Board of Dental Examiners 400.

Iowa State Board of Dental Examiners, 400, 880.

Iowa State Dental Society, 78, 152, 234, 316, 398.

Is Tartar a Cause of Pyorrhea Alveolaris?
The Logical Test Applied, 881.
Itineraries of National Dental Association,

Jack, Dr. Louis, Memorial to, 549. Jackson, Dr. V. H., Discussion, 28, 30, 528.

James, Austin F., D.D.S., Chicago, Ill., Contribution by, 334.

Jaw Bones Produced by Orthodontic Treat-ment, Some Morphological Changes in ment, So the, 161.

Jaws Sustained in This War, Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and, 738.

Johnson, Eugene A., 719.

Johnston, R. R., D.D.S., Contribution by, 327. Pittsburgh, Pa.,

Jones, Dr. Charles F., Discussion, 56.

Jones, Dr. W. I., Treatment of Impacted Third Molars, 786. Juvet, Dr. C. H., Discussion, 754.

Kansas State Dental Association, 234, 316, 320, 398.

Kauffer, H. J., D.D.S., Root Implantation, Physiologic and Mechanical, 33. Discussion, 53, 57, 290.

Kauffer's, Dr., Paper, Discussion of, 53. Keeler, Dr. H. D., Discussion, 31. Keeping Our Patients Comfortable During Mastication, 700.

Kells, C. Edmund, D.D.S., Amæbæ in Pyorrheal Fockets, 81.

The Rationale of Immediate Root Canal Filling, 481.

rheal Fockets, 81.

The Rationale of Immediate Root Canal Filling, 481.

Kemple, Dr., Discussion on the Paper of, 519.

Kemple, Dr. F. C., Discussion, 23, 25, 26, 32, 278, 581, 755, 756, 757, 909, 910, 911.

A Consideration of the Question of Early Treatment of Malocclusion, 440.

Kentucky State Dental Association, 152, 234, 316, 398, 472.

Ketcham, A. H., D.D.S., Restoration of the Normal Masticatory Function of Decayed Teeth, 98.

Normal Masticatory Function of Decayed Teeth, 98.
Keyes, Dr. Frederick A., Dentistry in Public Institutions, 280.

Discussion, 378.
Kings County Dental Society, 579.
Kingsley Marble Bust of the Saviour, The, 306.

Kirk, Edward C., D.D.S., Sc.D., LL.D., Dean of the School of Dentistry. The Evolution of Dentistry. Address of, 247.
Knowledge of Occlusion Needed by Dentists, 100.

Kussy, Dr. Joseph, Discussion, 54, 534.

Lake Erie Dental Association, 240. Late Thomas W. Evans, The, 266. Law, Harrison Anti-Narcotic, 308. Lawton, Dr. James A., Discussion, 288.
Lebanon Valley Dental Association, 797.
LeClear, Thomas, The Identification of Amæbæ in Dry Smears, from Cases of Pyorrhea. 401 rhea, 401.

Note on Standing Amœba in Dry Smears, from Cases of Pyorrhea, 891.
Lehigh Valley Dental Society, 209.
Letter from Dr. Milo Hellman, 471.
Levy, Drs. J. M., and Robt. A. Hatcher, Observations on the Relative Toxicity of Novocain and Cocain, 721.

Novocain and Cocain, 721.

Lime Water, 364.

Limitation of Radiography, 809.

Living Pulp Left at Ends of Canals, 839.

Local Anesthesia, 642, 648, 656, 955.

Local Anesthesia in Operative Dentistry, 641.

Logan, G. F., D.D.S., Is Tartar a Cause of Pyorrhea Alveolaris? The Logical Test

Pyorrhea Alveolaris? The Logical Test Applied, 881. Logan, Wm. H. G., Blood Findings in 162 Consecutive Cases of Chronic Oral In-fection Associated with Teeth, 912. Logical Test Applied, The. Is Tartar a Cause of Pyorrhea Alveolaris? 881. Loop Arche, A New Method of Attachment for the, 819.

Louisiana State Dental Society, 200, 234, 316, 398, 473, 798.

Lourie, Dr. Lloyd S., Discussion, 907.

Lower Wisdom Teeth, 591.

Luther, Dr. Ralph E., 313.

McCall, John Oppie, D.D.S., Buffalo, N. Y.,
Contribution by, 326.
McDonagh, Andrew J., D.D.S., Toronto, Can.,
Contribution by, 329.
McSweeney, Edward F., Address by, 18.
Dental Dispensaries in Boston, 227.
Maine Board of Dental Examiners, 318, 800.
Maine Dental Society, 316, 398, 473.
Malnutrition 95

Maine Dental Society, 316, 398, 473.

Malnutrition, 95.

Malocclusion, A Consideration of the Question of Early Treatment of, 440.

Malocclusion, Facial Deformity and Dental Disease, The Relation of the Internal Secretory Organs to, 661.

Mandibular Anesthesia, 651.

Marble Bust of the Saviour, The Kingsley, 306.

Maryland Board of the Dental Examiners, 318, 709.

Maryland State Dental Association, 78, 152, 234, 316, 398, 473.

Massachusetts Board of Dental Examiners, 880, Massachusetts Board of Registration in Den-

tistry, 238.

Massachusetts Dental Society, 78, 152, 234,

316, 398, 768.

Mastication, 133.

Mastication, Keeping Our Patients Comfortable During, 700.

Masticatory Function of Decayed Teeth,

Restoration of the Normal, 98.
Maxillary Anesthesia, 663.
Mechanical Force in Retention 903.
Mechanical, Root Implantation, Physiologic

Mechanical, Root Implantation, Physiologic and, 33. Medell, W. S., B.Sc., Copper Cement Chem-istry, 209.

Medical Inspection in the Boston Schools, 19.
Medical Prophylaxis, 299.
Medico-Chirurgical to Merge with the University of Pennsylvania, The, 863.
Meeting of the New Jersey State Dental Society, Forty-fourth Annual, 53.
Melotte, Dr. George W., 794.
Memorial Resolution Adopted by the Faculty of the Dental School on Thursday Evening, September 23, 1915, at a Special Meeting Convened to Commemorate the Life and Service of Dean Greene Vardiman Black, 871.
Memorial Resolution Passed by the Dubuque Dental Society. Dr. James Leslie Tay-

Dental Society. Dr. James Leslie Tay-

Memorial Resolution Passed by the Dubuque
Dental Society. Dr. James Leslie Taylor, 552.

Memorial to Dr. James Truman. American
Academy of Dental Science, Boston,
Mass., 548.

Memorial to Dr. Louis Jack, 549.

Memorial to Dr. Louis Jack, 549.

Memory, In, of Dr. G. V. Black, 957.

Mercury, 243.

Mercury, The Treatment of Fyorrhea Aleveolaris with Succinimide of, 241.

Merge with The University of Pennsylvania,
The Medico-Chirurgical to, 863.

Merritt. Arthur H., D.D.S., Mouth Infections;
Their Cause, Treatment and Systemic
Effect, 758.

Method of Applying Acid to Canals, 577.

Method of Attachment for the Loop Arch, A
New, 819.

Method of Attachment for the Loop Arch, A New, 819.
Method of Pouring Cast, 834.
Methods in Local Anesthesia, 648.
Michigan State Board of Dental Examiners, 320, 800.
Miller, W. D., 262.
Minez, Dr. Julius, Discussion, 183.
Minneapolis District Dental Society, 80.
Minnesota State Dental Association, 78, 152, 234, 316, 398, 473.
Mississippi Dental Association, 78, 152, 200, 234, 316.

Missouri State Dental Association, 78, 152, 234, 235, 316, 398, 473.

Models, 898.

Models, 898.
Mobility of Natural Teeth, 421.
Modifications of Bacterial Forms, 89.
Molar Cusps, 103.
Molar Roots, 805.
Molar Stress, 897.
Molars, Treatment of Impacted Third, 786.
Montana State Board of Dental Examiners,

Montana State Board of Dental Examiners, 400, 878. Montana State Dental Society, 78, 152, 234, 316, 398, 473, 553. Morphological Changes in the Jaw Bones Pro-duced by Orthodontic Treatment, Some,

Morphological Changes in the Jaw Bones Froduced by Orthodontic Treatment, Some, 161.

Morrison, Dr. James B., Discussion, 270.

Mouth Cleanliness, 759.

Mouth Hygiene Directions, 341.

Mouth Hygiene Educational Film, Criticism of a, 485.

Mouth Infection and Systemic Disease, 942.

Mouth Infections: Their Cause, Treatment and Systemic Effect, 758.

Mouth, Instructions for the Home Care of the, 356.

Mouth Washes, 338, 356.

Multiple Apical Foramina, 611.

Multiple Areas of Infection, 610.

Multiple Foramina, 583.

Mummery, Mr. J. Howard, M.R.C.S., LD.S., of London, England, Address by, 261.

Mummification, 743.

Munroe, Dr., Discussion, 829.

Muscular Fressure, 905.

Myxedema, 674.

Myxedema, 674.

Name Advisory Board for Dental College, 960. Nasal Space, 442.

National Association of Dental Faculties, 77,

959. National Dental Association, 876. National Dental Association, Itineraries of,

557. Natural Cleansing Better Than Artificial

Cleansing, 940.
Natural Teeth, 421.
Nebraska State Dental Society, 316, 398.
Need of Filling Through Apical Foramen, 838.
New Gospel of Health According to the Dentist, The, 131.

tist, The, 181.

New Hampshire Board of Registration in Dentistry, 237.

New Hampshire State Dental Society, 78, 152, 234, 316, 398, 473.

New Jersey State Board of Registration and Examination in Dentistry, 559, 798.

New Jersey State Dental Association, 286.

Discussion on Reflex Anesthesia, 287.

Discussion of Dr. Clark's Paper, 297.

New Jersey State Dental Society, 33, 53, 78, 131, 152, 191, 234, 236, 286, 317, 399, 473, 553.

New Jersey State Dental Society, Fortyfourth Annual Meeting of the, Discussion of Dr. Kauffer's Paper, 53.

New Method of Atachment for the Loop Arch, A, 819.

New Method of Atachment for the Loop Arch, A, 819.

New Mexico Board of Dental Examiners, 479.

New Mexico State Dental Society, 78, 162, 234, 317, 399, 473, 478, 553.

New Thing in Dentistry, A Cure for Pyorrhea is No. 403.

New York City, Dental Hygiene Week and Tooth Brush Day in the Public Schools of 536

Tooth Brush Day in the Public Schools of, 536.

New York State Dental Society, 78, 152, 235, 317, 399.

Nones, Samuel Smith, D.D.S., 719.

Normal Contact, 701.

Normal Masticatory Function of Decayed Teeth, Restoration of the, 98.

North Carolina Dental Society, 78, 152, 235, 317, 399, 473.

North Carolina State Board of Dental Examiners, 237, 878.

North Dakota Board of Dental Examiners, 480.
North Dakota State Dental Society, 317, 399.
Northeastern Dental Association, 478.
Northern Ohio Dental Association, The, 319.
Note on Staining Ameba in Dry Smears, from Cases of Pyorrhea, 891.
Notice of Registration. To All Dentists Licensed in the State of Illinois, 799.
Novocain and Cocain, Observations on the Relative Toxicity of, 721.
Novocain, Concerning the Death Attributed to, 874.
Novocain Toxicity, 732.
Novocain Toxicity, 732.
Nurses, Dental, 229.
Nuts with the Teeth, Cracking, 785.

Observations on the Realative Toxicity of Novocain and Cocain, 721. Occlusion, 100. Occlusionsanomalien Der Zahne, Angle's Die,

230. Society of Western Pennsyl-Odontological

Odontological Society of Western rennsyrvania, 238.
Ohio State Dental Society, 153, 235, 317, 399, 473, 553, 797, 876, 877, 959.
Ohio Valley Dental Society, 400.
Oklahoma State Dental Society, 78, 153, 160,

235

Ontario Dental Society, 317.
Opening Into Pulp Chamber, 569.
Opening the Suture, 906.
Operative Procedures in Relation to Dental

Operative Procedures in Relation to Dental Caries and Diseases of the Investing Tissues, 936.

Operating Without Pain, 561.

Operative Dentistry, Local Anesthesia in, 641.

Oral Anesthesia, 231.

Oral Infection Associated with Teeth, Blood Findings in 162 Consecutive Cases of Chronic, 912.

Oral Ostetitis in Its Relation to Anthritis, 487.

Oral Prophylaxis the Guardian of Health, 200.

Oral Sepsis as Related to Systemic Disease, 930. 930.

Organs to Malocclusion, Facial Deformity and Dental Disease, The Relation of the Internal Secretory, 661.

American Society of Orthodontia: dontists. Discussion of the Faper of

Dr. Ottolengui, 23.
Discussion of Dr. Dewey's Paper, 907.
Discussion of Dr. Woodruff's Paper, The
Causes of Abnormalities, Heredity or Environment, 271

Discussion on the Paper of Dr. Kemple, 519

Discussion on the Paper of Dr. Grieves, Causes of Abnormalities, The-Heredity

or Environment, 86.
Consideration of the Question of Early
Treatment of Malocclusion, A, 440.

Correction, 279 Correction, 278.
Discussion of Dr. Hellman's Paper, 182.
Discussion of Dr. Robinson's Paper, 828.
New Method of Attachment for the Loop

New Method of Attachment for the Loop Arch, A, 819.
Relation of the Internal Secretory Organs to Malocclusion, Facial Deformity and Dental Disease, The, 661.
Some Morphological Changes in the Jaw Bones Produced by Orthodontic Treat-ment, 161.

ment, 161. Some Principles of Retention, 903.

Orthodontic Treatment, Prophylaxis During. 365.

Orthodontic Treatment, Some Morphological Changes in the Jaw Bones Produced by, 161.

Orthodontists Responsible for Impacted Teeth. 595.

Orton, Forrest H., D.D.S., Root Canal Filling, 801.

Osteltis in Its Relation to Arthritis, Oral, 487. Ottolengui, Discussion of the Paper of Dr. 23. Ottolengui, Dr. R., Discussion, 26, 30, 31, 32, 273, 377, 379, 382, 383, 527, 626, 765, 755, 828, 829, 909, 911. Prophylaxis During Orthodontic Treatment. Contribution by, 365. The Treatment and Filling of "Root Canals Which Cannot Be Filled," 811.

Fain, Operating Without, 561. Palmer, Dr. Geo. B., Discussion, 530.
Panama-Pacific Dental Congress, Rules Governing Clinicians and Essayists of the, 153.

153.
Panama-Pacific Dental Congress, The, 77, 151, 233, 315, 397, 472, 553, 554, 777, 877, 912, 930, 936.
Panama-Pacific Dental Congress, The, Is to Be Held at San Francisco, August 30-September 9, 1915—154.
Paraffin Root Fillings, 586.
Parallelism, 426.
Parallelism, 426.

Parallelism, 426.
Parallelometer, 427.
Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal Functions of the Teeth Which Are Used as Piers for Bridgework, The Application of the Chayes,

Parathyroid Bodies, 675. Fartially Erupted Third Molars, 760. Paste for Filling Root Canals, 484.

Paste for Filling Root Pastes, 508, 627. Patients Comfortable Patients Comfortable During Mastication, Keeping Our, 700.
Patients in Regard to the Cleansing of Teeth,

Intructions to. Foreword, 321.
Patient, The Treatment of Pyorrhea from the Viewpoint of the, 711.

Viewpoint of the, 711.

Patterns, 835.

Patterson, J. D., D.D.S., Kansas City, Mo., Contribution by, 330.

Pennsylvania State Board of Dental Examiners, 400, 879.

Pennsylvania State Dental Society, 79, 153, 235, 317, 399, 473.

Periapical Infections, 929.

Periapical Infections, The Correct Treatment of Fulpless Teeth Must Eliminate the Possibility of, 837.

Perkins, A. F., D.M.D., Root Canals Which Cannot Be Filled, 806.

Peroutky, J. W., D.D.S., Cracking Nuts with the Teeth, 785.

Phenomena of Dental Caries, 133.

Physiologic and Mechanical, Root Implanta-

Physiologic and Mechanical, Root Implanta-

Physiologic and Mechanical, Root Implanta-tion, 33.

Physiological Functions of a Saddle, 832.

Fiers for Bridgework, The Application of the Chayes Parallelometer, the Parallelo-drill and Attachments in the Conserva-tion of the Common Reciprocal Func-tions of the Teeth Which Are Used as, 892.

Pituitary Body, 676.
Planning the Saddle, 834.
Pockets, Amœbæ in Pyorrheal, 81.
Fossibility of Periapical Reinfection, The Correct Treatment of Pulpless Teeth Must Eliminate the, 837.

Post-Operative Pains, 656.
Posts, 424.
Posts, 424.
Preparation of Roots, 424.
Preparation, Root Canal, 567.
President's Address, The, 694.
Prime, Dr. W. I., Paste for Filling Root
Canals, 484.
Frinciples, Functions and Construction of
Saddles in Bridgework, The, 831.
Principles of Retention, Some, 903.
Prinz, Dr. Hermann, Discussion, 598.
Problem of Pulp Disease, The, 62. Post-Operative Pains, 656

Problem of Root Canal Treatment, The, 742. Problem of the Day in Dentistry, The Great-742. est, 215.

Procedures in Relation to Dental Caries and Diseases of the Investing Tissues, Op-erative, 936.

Diseases of the Investing Tissues, Operative, 936.

Profession? What Is the Highest Function of the Dental, 409.

Prophylaxis, 299, 300.

Prophylaxis, Dental, 386.

Prophylaxis During Orthodontic Treatment.

Contribution by Dr. R. Ottolengui, New York, 365.

Frophylaxis Symposium, A,

Instructions to Patients in Regard to the

Ohylaxis Symposium, A,
Instructions to Patients in Regard to the
Cleansing of Teeth, Foreword, 321.
Contribution by Grace Rogers Spalding,
D.D.S., Detroit, Mich, 322.
Contribution by Gillette Hayden, D.D.S.,
Columbia Ohi:

Contribution by Gillette Hayden, D.D.S., Columbus, Ohio, 324.
Contribution by Gillette Hayden, D.D.S., Columbus, Ohio, 324.
Contribution by John Oppie McCall, D.D.S., Buffalo, N. Y., 326.
Contribution by R. R. Johnston, D.D.S., Pittsburgh, Pa., 327.
Contribution by A. C. Hamm, D.D.S., Denver, Col., 328.
Contribution by Andrew J. McDonough, D.D.S., Toroato, Can., 329.
Contribution by J. D. Patterson, D.D.S., Kansas City, Mo., 330.
Contribution by F. H. Skinner, D.D.S., Chicago, Ill., 331.
Contribution by Austin F. James, D.D.S., Chicago, Ill., 334.
Contribution by Paul R. Stillman, D.D.S., New York City, 334.
Contribution by M. L. Rhein, M.D., D.D.S., New York City, 336.
Mouth Hygiene Directions. By Jules J. Sarrazin, D.D.S., New Orleans, 341.
Instructions for the Home Cons.

Mouth Hygiene Directions. By Jules J. Sarrazin, D.D.S., New Orleans, 341.
Instructions for the Home Care of the Mouth. By Alfred C. Fones, D.D.S., Bridgeport, Conn., 356.
Prophylaxis During Orthodontic Treatment. Contribution by Dr. R. Ottolengui, New York, 365.
Description of Tooth Brush Illustrations, 271

371.

Prophylaxis the Guardian of Health, Oral, 200. Proposed Solution of the School Problem, The, 142.

standard and the Chayes Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal Functions of the Teeth Which Are Used as Piers for Bridgework, The, 892.

Bridgework Conducive to Health and the Instruments for Constructing It. 415. Prosthodontia:

Instruments for Constructing It, 415.
Principles, Functions and Construction of
Saddles in Bridgework, The, 831.
Frotrusion of Canal Fillings Through Fora-

mina, 629. Protrusion of Root Fillings Through Apices,

862.

Public Schools of New York City, Dental Hygiene Week and Tooth Brush Day in the, 536. Public Institutions, Dentistry in, 280. Public Institutions, The Dental Hygienist in,

120.

Public Schools of Bridgeport, Dental Hygien-ists at Work in the, 141.
Pullen, Dr. H. A., Discussion, 519, 748.
Pulp Canals, 609.
Pulp Canal Work in Infirmaries, 855.

Pulp Canal Work in Infirmaries, 850.
Pulp Chamber, 569.
Pulp Disease, 62.
Fulpless Teeth Must Eliminate the Possibility
of Periapical Reinfection, The Correct
Treatment of, 837.
Pulpless Teeth, The Responsibility of the Dentist in the Care of, 498.
Pulps 500. 569.

Pulps, 500, 569.
Pyorrhea, 763, 766, 767, 883, 884.
Pyorrhea Alveolaris? Is Tartar a Carthe Logical Test Applied, 881. Cause of.

Pyorrhea Alveolaris with Succinimide of Mercury, The Treatment of, 241.
Pyorrhea from the Viewpoint of the Patient,
The Treatment of, 711.
Pyorrhea Is No New Thing in Dentistry, A
Cure for, 403.
Pyorrheal Pockets, Amœbæ in, 81.
Pyorrhea, Note on Staining Amœba in Dry
Smears, from Cases of, 891.
Pyorrhea, The Identification of Amœbæ in Dry
Smears, from Cases of, 401.
Fyorrhea, The Rôle of Endamœbæ Gingivalis
in, 460.

Question of Cost of Radiographs, The, 851. Question of Early Treatment of Malocclusion, A Consideration of the, 440.

Radiographs, 851

Radiography, 809. Rationale of Immediate Root Canal Filling,

Rationale of Immediate Root Canal Finning,
The, 481.
Reasons for Extracting Teeth, 607.
Reciprocal Functions of the Teeth, 893.
Reciprocal Functions of the Teeth Which Are
Used as Piers for Bridgework, The Application of the Chayes Parallelometer,
the Parallelodrill and Attachments in
the Conservation of the Commun. 892.

the Conservation of the Common, 892.
Red Copper Cement, 209, 210.
Red Cross Fund, Dental, 559.
Reed, Geo. H., D.D.S., The Treatment of Reed, Geo. Pyorrhea Mercur H., D.D.S., The Treatment hea Alveolaris with Succinimide

Pyorrhea Alveolaris with Succinimide of Mercury, 241.
Reflex Anesthesia, 191.
Reflex Anesthesia, Discussion on, 287.
Regeneration of Bone Thereabout, The Sealing of Apical Foramina with Gutta Percha and the, 859.
Regeneration Principle in Man, 90.
Regulating Teeth, 590.
Reinfection, The Correct Treatment of Pulpless Teeth Must Eliminate the Possibility of Periapical, 837.
Related to Systemic Disease, Oral Sepsis as, 930.

930.

Relation and Purpose of Molar Cusps, 103. Relation of Dental Arch to Nasal Space, 442. Relation of Dentist to Physician, 503. Relation of Teeth to the Healthy Mouth, 939. Relation of the Internal Secretory Organs to

Malocclusion, Facial Deformity and Dental Disease, The, 661.
Relation to Arthritis, Oral Osteitis in Its, 487.
Relation to Dental Caries and Diseases of the Investing Tissues, Operative Procedures

in, 936.
Relative Toxicity of Novocain and Cocain,
Observations on the, 721.

Observations on the, 721.
Relief Chambers in Saddles, 835.
Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in This War, Urgent Appeal for a Special Dental Hospital Fund for the, 738.
Removal of Lower Wisdom Teeth, 591.
Removal of Pulps, 500, 569.
Report of Dr. Jos. D. Eby, 474.
Requirements of Root Canal Filling, 585.
Resolution, Memorial, 871.
Resolution Passed by the Dubuque Dental Society, Memorial.
Taylor, 552.

Resolution Fassed by the Bundique Belia 30ciety, Memorial. Dr. James Leslie
Taylor, 552.
Resources of the Forsyth Dental Infirmary,
The, 60.
Respiratory Failure, 729.
Responsibility of Dentists for Infections, 947.
Responsibility of the Dentist in the Care of
Pulpless Teeth, The, 498.
Restoration of Contact to Protect Gingly,

939

Restoration of Masticatory Efficiency, 102. Restoration of the Normal Masticatory Func-tion of Decayed Teeth, 98. Restoring Fosition of Teeth Before Filling,

703.

Results of Treatment with Emetin, 405.
Retention, 903, 904, 905.
Retention, Some Principles of, 903.
Review of Articles and Discussions on Root Canal Treatment, 627.
Rhein, Dr. M. L., Discussion of Paper by, 849.
Rhein, M. L., D.D.S., New York City, 847.
Contribution by, 336.
Discussion, 603, 617, 854.
The Correct Treatment of Pulpless Teeth
Must Eliminate the Possibility of Periapical Reinfection, 837.
Correction, 955. apical Reinfection, 887.
Correction, 955.
Rhode Island Dental Society, 79.
Riggs' Disease Preventable, 207.
Riggs, Dr. Chas. H., Discussion, 287.
Robinson, Ray D., D.D.S., A New Method of Attachment for the Loop Arch, 819.
Discussion, 829, 830.
Robinson's, Dr., Paper, Discussion of, 828.
Rôle of Endamœba Gingivalis in Pyorrhea, The, 460.
Rood, Dr. Vernon D., Discussion, 303.
Root Canal Filling, 501, 583, 801.
Root Canal Filling, The Rationale of Imme-Root Canal Filling, Ott, 303, 01, 303, Roots, 424. Root Work, 509. Root Work, 509.
Roseman, Dr. Milton J., Howard University,
Address by, 12.
Rosenow's Experiments and Findings, 931.
Rosin, 582, 586.
Rosin and Gutta Percha Root Fillings, 586.
Rosin Solution in Root Canals, 579.
Rotary Brushing, 386.
Rotary Motion Condemned, 338.
Rubber Dam, 569.
Rules Governing Clinicians and Essayists of
the Panama-Pacific Dental Congress, 153.
Rutland County Dental Society, 960.

Saddles, 832, 833, 834, 835.
Saddles in Bridgework, The Principles, Functions and Construction of, 831.
Sarrazin, Jules J., D.D.S., Oral Prophylaxis the Guardian of Health, 200.
Mouth Hygiene Directions, 341.
The Emetin Error, 404.
Saviour, The Kingsley Marble Bust of the, 306.
Sayre, Reginald, M.D., Criticism of a Mouth Hygiene Educational Film, 485.
Schamberg, Dr. M. I., Discussion, 619, 626, 853.

Schamberg, Dr. M. 1., Discussion, 620, 621, 853.
School Clinic, 128.
School Problem, 142.
Schools of Bridgeport, Dental Hygienists at Work in the Public, 141.
Schools of New York City, Dental Hygiene Week and Tooth Brush Day in the Public, 536.
Scope of Work of the Forsyth Infirmary, 19.
Sculls, 752.
Sealing of Apical Foramina with Cutta Percha

Sculls, 752.
Sealing of Apical Foramina with Gutta Percha and the Regeneration of Bone Thereabout, The, 859.
Sears, Dr. B. A., Discussion, 288, 293.
Second District Dental Society, Discussion of Dr. Fones' Paper, 376.
Discussion on Dr. Callahan's Paper, 598.
Discussion of Dr. Best's Faper, 606.
Second District Dental Society of the State

of New York, 120, 280, 376, 498, 567, 598, 606.

Second District Dental Society's Annual Din-

Second District Dental Society's Annual Din-ner, 236.
Secretory Organs to Malocclusion, Facial De-formity and Dental Disease, The Rela-tion of the Internal, 661.
Sepsis as Related to Systemic Disease, Oral,

930.

Severe Hemorrhage After Extraction, A Case

Shapiro, Dr., Discussion, 382, 383.
Shapiro, Dr., Discussion, 380, 382.
Should Root Fillings Extend Through Apex? 613.

Silverman, Dr. S. L., Concerning the Death-Attributed to Novocain, 874.
Silverman, S.L., Local Anesthesia, 955.
Simon, Wm., of the Baltimore College of Dental Surgery, Address by, 263.

Simple Bridge, 418.
Size and Shape of Posts, 424.
Skinner, F. H., D.D.S., Chicago, Ill., Contribution by, 331.

tribution by, 331.
Slade, Dr., Discussion, 296.
Smears, from Cases of Pyorrhea, Note on Staining Amœba in Dry, 891.
Smears, from Cases of Pyorrhea, The Identification of Amœbæ in Dry, 401.
Smith, Dr. A. E., Discussion, 55, 57.
Smith, Dr., Discussion, 291.
Smith, Provost, Address, 247.

Alabama Dental As-

Society Announcements: Alabama Dental Association, 77, 151, 233, 315.

Alumni Association of the University of Buffalo, Dental Department, 159.

American Institute of Dental Teachers,

77, 800, 959.
American Society of Orthodontists. 553.

554. Arizona State Dental Society, 77, 151. 233, 315, 397, 472, 553, 797. Arkansas Examination, 400. Arkansas State Dental Association, 77, 151, 233, 315, 397. Association of Military Dental Surgeons,

Chattanooga Dental Society, 80.

Chicago Dental Society, 79. Colorado State Dental Association, 151, 233, 315, 397, 472.
Connecticut State Dental Association, 77.

151, 233, 315.

Delta Sigma Delta Fraternity, 480. Dental Commissioners-of Connecticut, 480,

880. Dental Red Cross Fund, 559. Dental Society of the State of New York,-

Examination of Dentists for the U. S. Army, 239, 558. F. D. I., 554. Fifth District Dental Society of the State-of New York, 318. Florida State Dental Society, 77, 151, 233, 315, 397, 472, 478. Forsyth Dental Infirmary for Children, The 477

The, 477.

Free Course of Instruction Given by College of Dentistry, University of Illinois, 157.

Georgia State Dental Association, 315, 319, 397, 472.
Golden Jubilee Meeting of the Missouri State Dental Association, The, 235.

Harvard Dental Alumni Association, 80. Idaho State Board of Dental Examiners,

480. Illinois State Dental Society, 78, 152, 234, 237, 316, 398.

Indiana State Board of Dental Examiners, 479.

10. Indiana State Dental Association, 78, 152, 234, 316, 398.

Iowa State Board of Dental Examiners, 400, 880.

Iowa State Dental Society, 78, 152, 234, 316, 398. Itineraries of National Dental Association, 557. Kansas State Dental Association, The, 234, 316, 320, 398. Kentucky State Dental Association, 152, 234, 316, 398, 472. Lake Erie Dental Association, 240. Lebanon Valley Dental Association, 797. Louisiana State Dental Society, 234, 316, 398, 473, 798. Maine Board of Dental Examiners, 318, Maine Dental Society, 316, 398, 473. Maryland Board of Dental Examiners, 318, 799. Maryland State Dental . 152, 234, 316, 398, 473. Association, 78, Massachusetts Board of Dental Examiners, Massachusetts Board of Registration in Dentistry, 23 Massachusetts 238. Dental Society, 78, 152, Massachusetts Dental Society, 78, 152, 234, 316, 398.
Michigan State Board of Dental Examiners, 320, 800.
Minneapolis District Dental Society, 80.
Minnesota State Dental Association, 78, 152, 234, 316, 398, 473.
Mississippi Dental Association, 78, 152, 234, 316. 234, 316. 234, 316, 398, 473. Montana State Board of Dental Examiners, 400, 878. Montaπa State Dental Society, 78, 152, 234, 316, 398, 473, 553. Name Advisory Board for Dental College, 960. National Association of Dental Faculties, 77, 959. National Dental Association, 876. Nebraska State Dental Society, 316, 398. New Hampshire Board of Registration in New Hampshire Board of Registration in Dentistry, 287.

New Hampshire State Dental Society, 78, 152, 234, 316, 398, 573.

New Jersey State Board of Registration and Examination in Dentistry, 559, 798.

New Jersey State Dental Society, 78, 152, 234, 236, 317, 399, 473, 553.

New Mexico Board of Dental Examiners, 479. New Mexico New Mexico State Dental Society, 78, 152, 234, 317, 399, 473, 478, 553.

New York State Dental Society, 78, 152, 235, 317, 399.

North Carolina Dental Society, 78, 152, 236, 317, 399. 235, 317, 399, 473. North Carolina State Board of Dental Examiners, 237, 878. North Dakota Board of Dental Examiners, Board of Dental 480. North Dakota State Dental Society, 317,

399.

319.

Ontario Dental Society, 317.

Report of Dr. Jos. D. Eby, 474. Rhode Island Dental Society, 79. Rules Governing Clinicians and Essayists of the Panama-Pacific Dental Congress, 153. Rutland County Dental Society, 960. Second District Dental Society's Annual Dinner, 236. South Carolina State Board of Dental Examiners, 160. South Carolina State Dental Association, 79, 153, 235, 317, 319.
South Dakota State Dental Society, 473, 554. Southern Minnesota District Dental So-Southern Minimestal District Bendar Co-ciety, 160.

Susquehanna Dental Association of Penn-sylvania, The, 237.

Tennessee State Dental Association, 79, 153, 235, 317, 399, 473.

Texas State Board of Dental Examiners, 319, 880. Texas State Dental Association, 79, 153, 235, 238, 317, 399. Utah State Dental Society, 79, 153, 235, 317, 399, 474, 478, 554. Vermont Board of Dental Examiners, 399. Vermont State Dental Society, 79, 153, 285, 317, 399, 798. Virginia State Board of Dental Exam-Virginia State Board of Dental Examiners, 320.
Virginia State Dental Association, 15 235, 317, 399, 474, 554, 797, 876, 879. W. Virginia State Dental Society, 79, 153, 235, 317. Wisconsin State Board of Dental Examiners, 318, 960. Wisconsin State Dental Society, 79, 153, 235, 317, 399, 474, 554.
Wyoming Board of Dental Examiners, 478 Society Discussions: Central Dental Association of New Jersey. Discussion of Dr. Darling's Paper, 532. Discussion of Paper by Dr. M. L. Rhein, 849. Discussion of Dr. Clark's Paper, 297.
Discussion on Reflex Anesthesia, 287.
Forty-fourth Annual Meeting of the New
Jersey State Dental Society. Discussion of Dr. Hauffer's Paper, 53.
New Jersey State Dental Association, 286. Discussion on Reflex Anesthesia, 287.
Discussion of Dr. Clark's Paper, 297.
Second District Dental Society. Discussion of Dr. Fones' Paper, 376.
Discussion on Dr. Callahan's Paper, 598.
Discussion of Dr. Best's Faper, 606. Society Papers: Blood Findings in 162 Con-secutive Cases of Chronic Oral Infec-tion Associated with Teeth, 912. Copper Cement Chemistry, 209.
Correct Treatment of Pulpless Teeth Must
Eliminate the Possibility of Periapical
Reinfection, The, 837. Northeastern Dental Association, 478 Northern Ohio Dental Association, The, Northern Illinois Dental Society, 797. Notice of Registration. To All Dentists Licensed in the State of Illinois, 799. Dental Hygienist in Public Institutions, The, 120. Dentistry in Public Institutions, 280. Odontological Society of Western Penn-Odontological Society of Western Felinsylvania, 238.
Ohio State Dental Society, 153, 235, 317, 399, 473, 553, 797, 876, 877, 959.
Ohio Valley Dental Society, 400. Efficiency, 705. Keeping Our Patients Comfortable During Mastication, 700. Mouth Infections: Their Cause, Treatment and Systemic Effect, 758. New Gospel of Health According to the Dentist, The, 131. Oklahoma State Dental Society, 78, 153, 160, 235. Dentist, The, 131.
perative Procedures in Relation to Den-tal Caries and Diseases of the Investing Panama-Pacific Dental Congress, 77, 233, 315, 397, 472, 553, 554, 877. Operative Panama-Pacific Dental Congress Is to Be Held at San Francisco, August 30-Sep-tember 9, 1915, The, 154. Tissues, 936. Oral Osteitis in Its Relation to Arthritis,

Pennsylvania State Board of Dental Examiners, 400, 879.
Fennsylvania State Dental Society, 79,

153, 235, 317, 399, 473.

Oral Prophylaxis the Guardian of Health, Oral Sepsis as Related to Systemic Disease, 930. ease, 930.
President's Address, The, 694.
Reflex Anesthesia, 191.
Responsibility of the Dentist in the Care of Pulpless Teeth, The, 498.
Restoration of the Normal Masticatory Function of Decayed Teeth, 98.
Root Canal Preparation, 567.
Root Implantation, Fhysiologic and Mechanical, 33. chanical, 33. Rosin Solution in Root Canals, 579. Method of Sodium-Potassium. Cleansing Canals, 571.
Solution in Root Canals, Rosin, 579.
Some Morphological Changes in the Jaw
Bones Produced by Orthodontic Treatment, 161. ment, 161.

Some Principles of Retention, 903.

Sources of Infection of Apical Area, 504.

South Carolina State Board of Dental Examiners, 160.

South Carolina State Dental Association, 79, 153, 235, 317, 319.

South Dakota State Dental Society, 473, 554.

Southern Minnesota District Dental Society, 160.

Soahn Dr. Chales A Discussion, 160. South Dakota State Dental Society, 473, 554.
Southern Minnesota District Dental Society, 160.
Spahn, Dr. Charles A., Discussion, 182.
Spalding, Grace Rogers, D.D.S., Detroit, Mich., Contribution by, 322.
Special Dental Hospital Fund for the Relief of the Many Sufferers from Wounds of the Face and Jaws Sustained in This War, Urgent Appeal for a, 738.
Staining Amœba in Dry Smears, from Cases of Pyorrhea, Note on, 891.
Stern, Leo, D.D.S., Local Anesthesia in Operative Dentistry, 641.
Stevens, Dr., Discussion, 183.
Stevenson, President, Address, 376, 606, 615.
Discussion, 378, 381, 382.
Stillman, Paul R., D.D.S., New York City, Contributions by, 334.
A Cure for Pyorrhea Is No New Thing in Dentistry, 403.
Streptococcus Viridans, 840.
Stress in Mastication, 896.
Strietmann, W. H., M.D., Oral Sepsis as Related to Systemic Disease, 930.
Study Models, 898.
Succinimide of Mercury, The Treatment of Pyorrhea Alveolaris with, 241.
Sudduth, Dr. W. Xavier, Memorial to, 957.
Sufferers from Wounds of the Face and Jaw Sustained in This War, Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many, 738.
Sulphuric Acid Treatment, 746.
Susquehanna Dental Association of Pennsylvania, The, 237.
Suture, 906.
Symposium, A Prophylaxis, 321.
Symptoms from Mercury Treatment, 242. Symposium, A Prophylaxis, 321. Symptoms from Mercury Treatment, 242. Syphilis, 90. Sypinis, 90.
Syringe and Its Care, The, 648.
Syringe Grips, 647.
Systemic Disease, Mouth Infection and, 942.
Systemic Disease, Oral Sepsis as Related to,

930. Systemic Effects, Their Cause, Treatment and, Mouth Infections, 758.

Systemic Infections from Tooth Roots, 607.

Systemic Infections of Local Origin, 931, 945. Table, Around the, 65, 147, 219, 309, 392, 465, 540, 633, 714, 781, 865, 949.
Tantalum, 598. Tape Floss, 347.

Tartar a Cause of Fyorrhea Alveolaris? Is.

The Logical Test Applied, 881.

Taylor, Dr., Discussion, 184.

xiii Taylor, Dr. James Leslie. Memorial Resolu-tion Passed by the Dubuque Dental So-Technic of Filling Canals, 746.
Technic of Filling Root Canal, 857.
Technique of Using Mercury, 248. Technique of Using Mercury, 248.
Teeth, 893.
Teeth, Blood Findings in 162 Consecutive Cases of Chronic Oral Infection Associated with, 912.
Teeth, Cracking Nuts with the, 785.
Teeth, Extraction of Wisdom, 953.
Teeth, Instructions to Patients in Regard to the Cleansing of. Foreword, 321.
Teeth Must Eliminate the Fossibility of Periapical Reinfection, The Correct Treatment of Pulpless, 837.
Teeth, Restoration of the Normal Masticatory Function of Decayed of Decayed, 98.
Teeth, The Responsibility of the Dentist in the Care of Pulpless, 498.
Teeth Which Are Used as Piers for Bridgework, The Application of the Chayes Parallelometer, the Parallelodrill and Attachments in the Conservation of the Common Reciprocal Functions of the Sept. Teeth, 893. 892.
Teeth, Wisdom, 590.
Tennessee State Dental Association, 79, 153, 235, 317, 399, 473.
Test Applied, The Logical. Is Tartar a Cause of Pyorrhea Alveolaris? 881.
Test of Tooth Brush Sterilizer, 372.
Tests of Emetin Treatment, 406.
Texas State Board of Dental Examiners, 319, 880 880.
Texas State Dental Association, 79, 98, 153, 235, 238, 317, 399.
Theory of Zonatherapy, 194.
Third Molars, 760.
Third Molars, Treatment of Impacted, 786.
Thoma, Kurt Hermann, D.M.D., Oral Anesthesia, 231.
Thomas, J. D., Extraction of Wisdom Teeth, 953. 953.
Thomas, John D., D.D.S., Wisdom Teeth, 590.
Thymus Body, 678.
Thyroid, The 672.
Tissue Necrosis and Infection, 610.
Tissues. Operative Procedures in Relation toDental Caries and Diseases of the Investing, 936.
To Make Lime Water, 364 To Make Lime Water, 364. To Make Lime Water, 364.
Tooth Brush, 348.
Tooth Brush Day in the Public Schools of New York City, Dental Hygiene Week and, 536.
Tooth Brush Illustrations, Description of, 371.
Tooth Brush Sterilization, 372.
Tooth Brush, What Shall We Do with the, Tooth Brush, What Shall We Do with the,
372.

Tooth Roots, 607.
Tooth Roots, 803.
Toxicity of Novocain and Cocain, Observations on the Relative, 721.
Trained Dental Nurse, The, 144.
Training of Hygienists for School Clinic, 128.
Transformation of Bone, 164.
Treatment and Filling of "Root Canals Which
Cannot Be Filled," The, 811.
Treatment and Systemic Effects, Their Cause,
Mouth Infections, 758. Treatment and Systemic Effects, Their Cause, Mouth Infections, 758.

Treatment of Imnacted Third Molars, 786.
Treatment of Malocclusion, A Consideration of the Question of Early, 440.
Treatment of Pregnant Women, 282.
Treatment of Pregnant Women, 282.
Treatment of Pulpless Teeth Must Eliminate the Possibility of Periapical Reinfection.
The Correct, 837.
Treatment of Pyorrhea, 767.
Treatment of Pyorrhea Alveolaris with Succinimide of Mercury, The, 251.
Treatment of Pyorrhea from the Viewpoint of the Patient, The, 711.
Treatment, Frophylaxis During Orthodontic, 365.

365.
Treatment Recommended by Barrett and Smith, 463.

Treatment, Review of Articles and Discussions on Root Canal, 627.

Treatment, Some Morphological Changes in the Jaw Bones Produced by Ortho-

the Jaw Bones Produced by Orthodontic, 161.
Treatment, The Problem of Root Canal, 742.
Truman, James, D.D.S., LL.D., 71.
Memorial to. American Academy of Dental Science, Boston, Mass., 548.
Tuberculosis, 93, 120.
Tuberculosis Hospitals, 283.
Turner, Thomas Edward, D.D.S., 74. Turner, Thomas Edward, D.D.S., 74.

University of Buffalo, Dental Department, Alumni Association of the 159. University of Illinois, Free Course of In-struction Given by College of Dentistry,

University of Pennsylvania, The Medico-Chirurgical to Merge with the, 863.
Urgent Appeal for a Special Dental Hospital
Fund for the Relief of the Many Sufferers from Wounds of the Face and
Jaws Sustained in This War, 788.
U. S. Army, Examination of Dentists for the,
239 558

U. S. Army, Examination of Dentists for the, 239, 558.
Use of Canal Drills, 570.
Use of Floss Silk, 362.
Use of Lime Water, 364.
Use of Mouth Wash, 356.
Use of Tape Floss, 347.
Use of Tooth Brush, 348.
Utah State Dental Society, 79, 153, 235, 317, 299, 474, 478, 554.

Vaccines in Pyorrhea, 767.
Vaccine Therapy, 625.
Van Cott, Dr., Discussion, 615.
Van Loan, Dr., Discussion, 383.
Variations and Effects of Stress in Mastica-Variations and tion, 896.
Vaughan, Dr., H. S., Discussion, 849.
Vermont Board of Dental Examiners, 399.
Vermont State Dental Society, 79, 153, 161, 235, 317, 399, 798.
Viewpoint of the Patient, The Treatment of Pyorrhea from the, 711.
Virginia State Board of Dental Examiners, 320.
Virginia State Dental Association, 153, 235, 317, 399, 574, 554, 797, 876, 879.

Waldron, Dr., Discussion, 828. Walker, Dr. Wm. Ernest. Discussion, 30, 31. Walker, William Ernest, D.D.S., M.D., 78. Warner, Geo. R., M.D., D.D.S. Efficiency,

War, Urgent Appear for a Special Dental Hospital Fund for the Relief of the

Many Sufferers from Wounds of the Face and Jaws Sustained in This, 738.

Watson, Dr., Wm. T. Discussion, 527. Watson, Dr. Milton T. Discussion, 522.

Wax Inlays, 116.
Week and Tooth Brush Day in the Public Schools of New York City, Dental Hygiene, 536.

Weisse, Dr. Faneuil D., 640.
What Is Crown and Bridgework? 416.
What Is the Highest Function of the Dental
Profession? 409.

What Shall We Do With the Tooth Brush, 372.
When and How to Use Floss Silk, 338.
Whitson, Dr. O. L. Keeping Our Patients
Comfortable During Mastication, 700.
William, Maurice, D.D.S. What Is the Highest Function of the Dental Profession?

Willis, Dr. R. H. Discussion, 378. Wilson, Dr. Geo. Y. The Fresident's Address,

Windrim, Mr. Address, 245.
Wisconsin State Board of Dental Examiners,

Wisconsin State Board of Dental Examiners, 318, 960.
Wisconsin State Dental Society, 79, 163, 235, 317, 399, 474, 554.
Wisdom Teeth, 590, 591, 592.
Wisdom Teeth, Extraction of, 953.
Woodruff, Col. Chas. E. The Causes of Abnormalities, Heredity or Environment, 86

Discussion, 278.

Woodruff's, Dr., Paper, The Causes of Ab-normalities, Heredity or Environment, Discussion of, 271. Work Accomplished by Eight Dental Hygien-

work accomplished by Eight Dental Hygieniets, 129.

Work in the Public Schools of Bridgeport, Dental Hygienists at, 141.

Work Which It May Accomplish, The Forsyth Dental Infirmary for Children and the 58

the, 58.

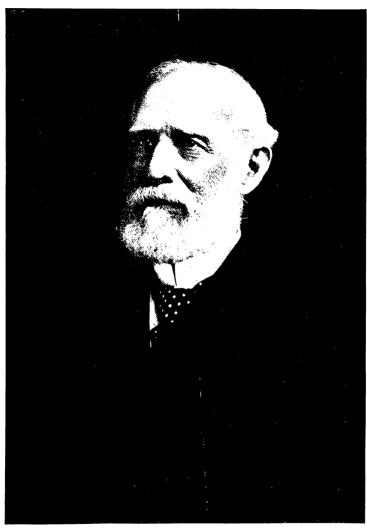
Wounds of the Face and Jaws Sustained in This War, Urgent Appeal for a Special Dental Hospital Fund for the Relief of the Many Sufferers from, 738. W. Virginia State Dental Society, 79, 153,

235, 317.

Wyoming Board of Dental Examiners, 478.

Young, Dr. J. Lowe. Discussion, 527, 528, 910.

Zahne, Angle's Die Occlusionsanomalien Der, 230. Zonatherapy, 194.



JAMES TRUMAN, D.D.S., LL.D.

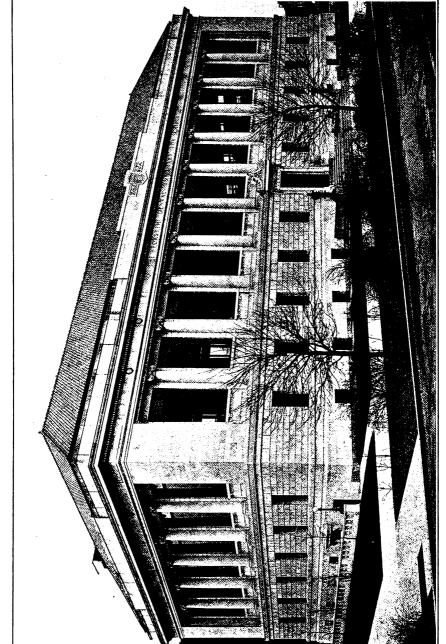


Dedication of the Forsyth Dental Infirmary for Children.

The dental profession of this country has long been looking forward to and dreaming of the Forsyth Dental Infirmary for Children, and it is a great pleasure, at last, to be able to announce the complete fulfillment of the great promise made by those public-spirited benefactors, the Forsyth brothers.

The dedication and first formal exhibition of the building occurred on November 24, 1914, a date that must ever live in dental and municipal history as marking the day on which dentistry at last arrived at the final stage of its career as a beneficent profession. Within less than a single century dentistry has been elevated from the position of something less than a mechanic art, to a respected position among the learned professions. Within that period of time we have seen the dental college, the dental journal, and the dental society come into being. through the great generosity of the Forsyths, we have lived to see the first great dental hospital, through the existence of which Dentistry may take a place beside its older sister, Medicine, by recognizing and catering to the needs of the very poor. It is to be hoped that the example set by the Forsyths will be followed by the generous rich of other cities, and that similar institutions will become fairly common throughout the land. But nothing can deprive the Forsyths of the credit due them of being the pioneers in this splendid contribution to professional charity, and the day

I Jan,



FORSYTH INFIRMARY



must come when somewhere on the land which the city has purchased between the Infirmary and the Art Museum, the municipality of Boston will erect a fitting monument to the Forsyth brothers.

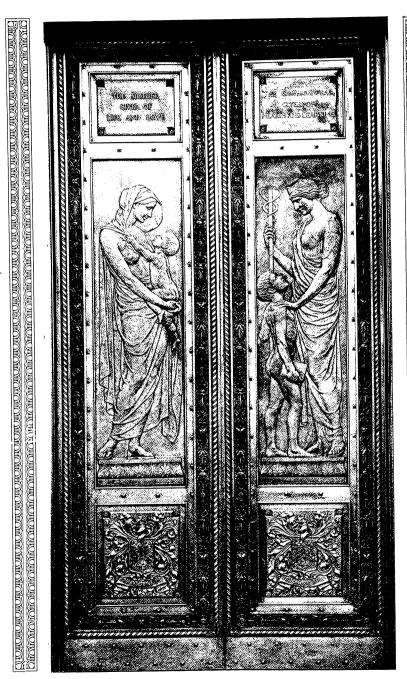
In his address at the dedicatory exercises Mr. Thomas Alexander Forsyth explained that the building, aside from its usefulness as a dental infirmary, was likewise erected as a memorial to James Bennett and George Henry Forsyth, and that for this reason it "embodies many artistic features usually lacking in buildings intended solely for hospital purposes."

That this is true one suspects as soon as his vision falls upon the exterior of the great building which, with its beautiful simplicity of lines, yet stands out as one of the most artistic architectural triumphs of Boston. At the portal the visitor inunediately recognizes that art as well as usefulness is to be a predominant note. The massive doors are of solid bronze, ornamented with splendidly modelled symbolic figures in low relief, one entitled, "The Mother, Giver of Life and Love," and the other, "The Commonweal, Giver of Health and Learning," the evident moral being that when the mother gives to her country her sons and daughters, it becomes the duty of the commonwealth, not alone to furnish them with education, but while doing this to safeguard their health. In calling attention of all municipalities to this most evident duty to its citizenry, the writer would ask the much quoted question enunciated by Dr. Mayo: "Will they do it!"

Too much credit cannot be given to the men who have labored to make the construction and equipment of this building so perfect that it will stand as a model for others for many years to come. While in a sense a hospital, yet in essential details it so differs from medical hospitals that in order to meet the high standards of equipment, upon which the committee had set their minds, it was necessary actually to create many things which appear in this building for the first time. The sanitary appliances are so many and so perfect that as the visitor is shown first one and then another feature his wonder grows, until finally as he passes out again through the great bronze doors, the dominant idea within his mind is to the effect that "disease may enter but cannot continue to exist in that building."

It will be impossible within the scope of this report to recount and describe all the marvels of this great institution, but no dentist who can afford to visit Boston within the coming year should fail to inspect the Forsyth Dental Infirmary. He will not alone enjoy his visit, but he will come away inspired to do better things in his own practice, and to feel more than ever proud of his membership in the dental profession.

Besides the great infirmary, at present furnished with sixty-five





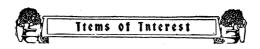
chairs, but with room for one hundred and ten, there is a model little surgery, equipped with dental chair and also a surgical operating table. both on rollers so that they may be readily moved, and placed in the centre of a little amphitheatre which will seat fifty or more men. thus making of it a splendid clinic room. Adjacent to the surgery is a perfectly appointed small hospital. No other word adequately describes it. Here we find a number of bedrooms and a sanitary kitchen. Thus, after operations, however severe, the patient may be fully cared for until convalescent. Nearby is a thoroughly equipped extracting room, a feature of which is a series of mouth rinsing basins, graded in height from the floor to accomodate children of different ages. Above the infirmary is the X-ray room with the most modern high powered apparatus, and all the latest devices for safeguarding the operators. One of the most interesting rooms, perhaps, is the sterilizing room. Each operator has several duplicate sets of instruments, and after use, the entire tray containing the set used is sent below to the sterilizer. Here a mammoth cage moves on an overhead trolley from the door of the elevator, across the room and into the sterilizing oven, so that if needful the instruments from all the infirmary chairs may be sterilized at one time. Here also we find the newest methods of sterilizing all other articles used in the building.

On the first floor are several rooms of interest, including the Director's Room, the Founder's Room (shown in the illustration), a beautiful Lecture Room, with a white screen for lantern projections built into one wall, and to the writer's mind the most attractive room in the entire building, the Reception Room for Children.

It is with regret that we find ourselves unable to present a full picture of this room. Herein is embodied that love of children which should and must dominate the hearts of the Directors and operators, if the Forsyth Dental Infirmary is to fulfill the evident wishes of the founders. The psychological influence of this room upon the plastic minds of children cannot but be beneficial. The first visit of the child to the dental office is usually mixed with dread. As soon as a child is brought into the Reception Room of the Forsyth Dental Infirmary, all fear must vanish. Here at once the little one will intuitively recognize that only kindly acts by kindly persons are to be anticipated.

The room is spacious, with gently arched ceiling ornately tesselated. The walls are tiled and richly decorated with tiled panels (shown in the illustrations) which, if the writer was correctly informed, won a ten thousand dollar prize in competition, and which therefore were made especially for the Forsyth Dental Infirmary. In the centre of this room are two large aquaria filled with ornamental fish. Around the room

5



are scattered low tables, and diminutive arm chairs which give to the place the atmosphere of a Lilliputian Club Room. On the tables are reading matter, picture books and games, and the writer was told that in front of the great fire-place there will possibly be a sand pile, where the children may play. This room is so attractive one wonders how the children will be tempted to leave it for the infirmary.



INFIRMARY

More, much more could be said of this institution. It is difficult to do justice to the subject without specific information as to details of construction and equipment, which are not at hand. It might be well to add, however, that there is not a drinking cup in the Infirmary, nor enough wood in the entire building from which to make a match.

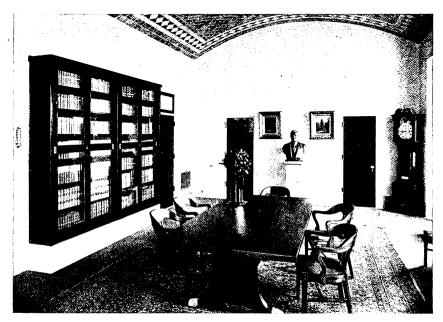
The dedicatory exercises were held in the Infirmary beginning at 10 A. M. promptly. Dr. Edwin T. Darby, of the University of Pennsylvania, presided and introduced the several speakers, and musical numbers were fittingly furnished by a chorus of school children. At four o'clock in the afternoon tea was served in charge of a committee of ladies, and occasion was thus afforded for visitors to inspect the building. In the evening a banquet was tendered to Mr. Thomas Alexander Forsyth, and thus ended a most memorable day. The following addresses were made during the morning exercises:



Address by the hon. James M. Curley, Mayor of Boston.

Boston has ever been blessed with loyal sons who have made her name one to conjure with in every section of the entire world.

Foremost in their sacrifice of life and fortune in time of strife for the cause of liberty; generous and humane in their consideration of humanity in times of peace.

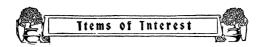


FOUNDER'S ROOM

The labor of her sons has made Boston first among the cities of the new world in liberty, in education and humane industrial progress.

This magnificent institution adds one more of those unique distinctions, which, like milestones, mark the progress of our fair city. Dedicated to a more virile and happy womanhood and manhood, it will ever continue to shed lustre on its donors. It will prove an inspiring influence for better direction in the care of the young to be adopted, lct us hope, by other progressive cities throughout the world.

The Forsyth brothers, one of whom, thank God, is with us to-day, Thomas Alexander, with the others, James Bennett, George Henry, and John Hamilton, who, from their place in heaven which their sacrifice and toil has merited, must gaze with both satisfaction and pleasure upon these exercises.



This building will ever remain a monument to their toil, thrift and love of humanity. What a contrast is here presented. Women and men assembled to dedicate an institution having for its purpose the lengthening of human life, while on the other side of the Atlantic men are engaged in the destruction of human life.

It is difficult for one to forego the thought that the time has arrived in human progress when the citizen soldiery, toiling in the trenches of industrial progress, should outrank in public esteem and admiration the destructive forces representing armies and navies, which it has been customary to deify in every land and in every age.

This institution, in my opinion, will prove not only a blessing to the children whose sufferings it will alleviate and whose bodies it will strengthen, but should tend to so change the current of public thought as to cause its donors, the Forsyth brothers, to outrank in the estimation of thinking women and men, the greatest warriors of our time.

Boston to-day is proud of her distinguished son, Thomas A. Forsyth, and his splendid contribution to humanity, and it is an exceeding pleasure to announce in recognition of appreciation of the Municipality his appointment as Trustee of the Boston City Hospital, where in a larger but no less responsible measure his splendid attainments may continue to benefit the unfortunate and needy of the entire city.

I have been impressed with the extreme modesty and simplicity of manner of Thomas A. Forsyth, and no man to whom those beautiful lines of O'Reilly entitled, "What is Good?" more fittingly apply.

"What is really good?" I asked in musing mood. Order said the law court; Knowledge said the school; Truth said the wise man; Pleasure said the fool: Love said the maiden; Beauty said the page; Freedom said the dreamer; Home said the sage: Fame said the soldier; Equity the seer; Spake my heart full sadly: "The answer is not here." Then within my bosom Softly this I heard: "Each heart holds the secret: Kindness is the word."



Address by Charles W. Eliot, CL.D., President Emeritus harvard University.

The advance of applied science, and particularly of chemistry physics, and bacteriology, within the past seventy years, has nowhere taken effect more advantageously than in dental medicine and dental art. American inventiveness took effect chiefly in the tools and mechanical processes of dentistry. German chemical science made valuable additions to the materials with which teeth are filled, or "stopped," as the British say: and the electric current made possible the use of machine drills, burs, and polishers on the teeth. Bacteriology had shed a flood of light on the processes of inflammation and suppuration, and on the methods of contagion or infection; both chemistry and physics have supplied various means of preventing or diminishing pain in dental operations; and the electric light has made it possible to perform dental operations during a much larger portion of the twenty-four hours than was formerly possible. Moreover these new resources of dentistry have spread over the civilized world so that in all parts of the orient, as well as the occident, you may find admirably equipped dental offices where all dental work can be done with the appliances and materials which are nowadays found in the best American dental offices. I have never seen in any city a more perfectly equipped dental laboratory than I saw two and one-half years ago in Tientsin, China. To be sure, it belonged to an American dentist; but all the nations that are represented in the treaty port. Tientsin, including the Chinese, availed themselves of the skill and equipment of this American dentist.

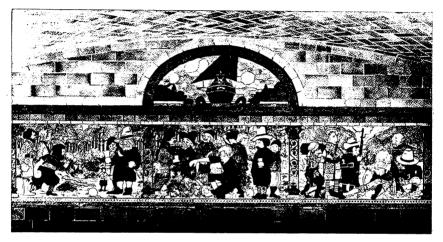
The field of work for the dentist has been much extended during the last twenty years. The most skillful dentists now operate on many portions of the mouth beside the teeth. The remedying of cleft palate has become a dental specialty; and broken jaws are now dealt with in large hospitals by dentists, rather than by ordinary surgeons. The dentist's means of diagnosis have also been greatly improved; and no medical or surgical practitioner is more helped by the X-rays than the dental practitioner in serious cases of malformation or injury.

These improvements in the science and art of dentistry have enabled the profession to do for individuals much more than they were formerly able to do for the prevention of pain and discomfort, the preservation of health and the prolongation of life; but simultaneously with this larger possibility of service has come the greater cost of the service; so that the skillful treatment of the teeth from childhood to age has become more and more the privilege of the well-to-do, the poor being unable to pay for the costly labors of the accomplished dentist. A clear perception of the deprivations which the less fortunate or less successful portion of the community suffers in this respect has led to the establishment and

9 Jan.



endowment of this Forsyth Dental Infirmary for Children. In this beautiful and perfectly equipped building the children of persons whose earnings are not much more than sufficient to cover the ordinary expenses of their families are to obtain, at merely nominal cost, as skillful dental service as the well-to-do can buy for their children; and through the services of trained dental nurses, the persons responsible at home for the children here treated, will be taught how to keep the children's mouths in as good order as their general health may permit. In my view, the teaching func-



TILE PANELS OF RIP VAN WINKLE

tion of this institution will be the most telling part of its total work. It is well to put a child's teeth in good order for once, and at the moment the child leaves the dental chair; but it is better to teach the mother or the sister at home how to keep that child's mouth in good order. The conservative ends of modern dentistry cannot be fulfilled without the following-up method of the modern hospital. The addition to a dispensary or an outpatient department of a hospital of that kind of social service which follows up the patients, teaches somebody at home the continuous treatment which should be administered, and sees that the patient returns to the hospital or dispensary again and again until cure is effected, is the most important addition that has been made within my memory to hospital and dispensary practice. It will receive in this institution an admirable demonstration of its far-reaching usefulness.

This building is a monument as well as an infirmary and school. It perfectly illustrates one of the admirable traits of successful business men in the United States—the desire on their part to make use of their private earnings and accumulations to advance some beneficial public un-



dertaking. It also illustrates fraternal love and concord. Long may it stand to speak to coming generations of these fine human qualities, and to relieve pain, promote health and prolong life.

Address by Mr. Chomas Alexander Forsyth.

Mr. Chairman, Ladies and Gentlemen: It seems fitting that I should say a few words to you in regard to the origin and perfection of this new undertaking.



TILE OF DORCHESTER GIANT



TILE PANELS OF PAUL REVERE'S RIDE

The idea of providing an institution for the care of the teeth of the children of Boston was first conceived by my brother James Bennett Forsyth, who died in the year 1909. In carrying out his wishes, my brother and myself desired to erect the infirmary in memory of our brothers, James Bennett and George Henry Forsyth. The building is therefore essentially a memorial foundation. While the consideration of its direct uses was constantly before our mind in its planning and construction, the idea that it was also to be a memorial has never been lost sight of. The building on this account embodies many artistic features usually lacking in buildings intended solely for hospital purposes.

In the construction of this institution we have entered a new field. No other building of this character is in existence. The problems we have faced have been encountered for the first time, and for their final solution I



have to thank our building committee of the Trustees, who have given generously of their time, their thought and of their expert knowledge. To their devotion the building owes its evolution and the extraordinary perfection of its professional detail. To the Mayor and City Council of Boston thanks are also due for their judicious foresight in the purchase of the land between the Infirmary and the Art Museum. Such promptitude as they have shown in this connection cannot fail to act as a spur to other gifts to the city.

It has been my wish that the Infirmary should be as a home to the children, beautiful and cheerful; a protector of their health, a refuge in their pain. By making them healthier and happier I hope it may make them grow to be better citizens of our beloved Boston. If this is accomplished, as I believe it must be with the co-operation of the Dental Profession, I shall feel that the gift has been well bestowed.

mr. Edward C. P. Graham, Architect of the Building.

I have the honor to announce to you the completion of this building, and I deliver to you this key as symbolic of its transference from the hand of the builder to the hand of the donor.

Mr. Forsuth.

I accept this key and I present it to you, Dr. Dowsley, as the representative of the Board of Trustees, and of the Dental Profession of Massachusetts,

to so administer this trust that it may secure in the highest degree the purposes we all have nearest at heart.

Dr. Dowsley.

In behalf of the Trustees of the Forsyth Dental Infirmary for Children, and of the Dental Profession of Massachusetts, I accept this trust, and I assure

you, sir, that we shall spare no endeavor to fulfill the purpose of your noble benevolence.

Address by Dr. Milton J. Rosenau, Harvard University.

I bring greetings of admiration and respect from the medical profession to the dental profession. More particularly do I bring the greetings of one medical specialty to another medical specialty; that is an appreciation of preventive medicine to the achievements of dentistry. It is not clear to all perhaps that dentistry is only one of the many medical specialties. The practice of dentistry is based upon the same fundamental sciences that give precision to the practice of medicine, surgery, and obstetrics. Furthermore, all true advances in medicine, including dentistry, are based upon additions to our knowledge gained through the scientific method of experimental research. Thus the principles of aseptic surgery apply to dental surgery with the same force and with the same good results as they do to general surgery. On the other hand researches



into the causes of dental caries have given us a clearer insight into the methods of preventing and curing these disfiguring and disabling lesions. Medicine and surgery have profited by these and other advances in the science of dentistry, but the world is especially indebted to two practitioners of dentistry for "God's highest mercy brought by man to man" in the warfare against pain; that is surgical anaesthesia. The achievements of Morton and Wells as well as those of Miller and Angle have helped to ease the burdens of mankind.

A tiny nerve, a little artery, and other minute structures enter the root of each tooth through a small opening at its tip. These vital structures unite the teeth with the rest of our body in a most intimate way. The teeth grind the food we eat in order to prepare it the better for digestion. After the food is digested and absorbed it enters the bloody courses through the body and some of it flows through the little artery into each tooth to furnish it the materials necessary for its growth and also to furnish it substances that preserve it against decay. The integrity of the tooth, then, depends upon its vital connections by means of nerves and blood vessels that bind it to the body; on the other hand, the health and vigor of the body in no small part depends upon the soundness of the teeth.

The practice and science of dentistry have become important chapters in the great book of preventive medicine. When we consider that the majority of infectious diseases to which flesh is heir enter by the mouth we begin to appreciate the importance of oral prophylaxis, and also understand the measure of protection afforded by clean and sound teeth, and clean and healthy mucous membranes. Tuberculosis, diphtheria, scarlet fever, measles, whooping-cough, mumps, pneumonia, influenza, cerebrospinal fever, common colds, and a great many other infections enter our systems through the nose and mouth; hence, the critical importance of cleanliness, sanitary habits, and oral prophylaxis in preventive medicine. Many of these communicable diseases occur in early life, and therefore, the Forsyth Dental Infirmary for Children is destined to play an important rôle in the fight against disease.

One of the greatest practical advances made in this decade is the knowledge that many cases of "rheumatism" are due to little foci of inflammation or little collections of pus somewhere in the body. Remove the focus and the "rheumatism" disappears like magic. These foci often occur as little abscesses about the roots of the teeth; perhaps they are not painful, show no swelling, and do not make their presence known, yet these little collections of pus may be seen as a shadow by the X-ray. Again dentistry looms large in the prevention and cure of one of the most baffling of maladies.

13 Jan-



Deformities of the jaws and malpositions of the teeth interfere with the proper development and functions of the brain. The correction of these deformities in time will convert the stupid dunce into a wide-awake alert, energetic youth. Such miracles are among the striking achievements of modern dentistry, and excite the admiration of the student of preventive medicine. By the early recognition of cancer and other serious maladies which may be cured if diagnosed in time, dentists have the same responsibilities and the same opportunities as physicians and surgeons.

Dentistry has taken a dignified place in the great edifice of the sanitary sciences. It guards the gateway of many infections and, hence becomes an important portal of protection. This noble building is not alone a monument to the wisdom and foresight of its founder, but a recognition of the great service of science to the welare of mankind. To us it is even more than that, for it emphasizes the overshadowing influence of American dentistry and of American dentists. Nowhere in the wide world will you find a like endowment dedicated to the good of man. Life has been made surer and life has been made longer through the achievements in the sanitary sciences. The object of preventive medicine, however, is not simply to prolong life, for there is little use in living longer unless we can live healthier, cleaner and better lives. To help improve the daily efficiency and increase the happiness and comfort of mankind is one of the services and privileges of dentistry.

Address by Donald M. Gallie, D.D.S., President National Dental Association.

Mr. Chairman, Mr. Forsyth, Ladies and Gentlemen: I wonder if there has lived an American man or woman who has not had a great desire to visit Boston? Her colonial history, the part she played in the founding of these United States, the prominence of her sons in war, statescraft, letters and philanthropy, the pre-eminence of her educational institutions. the architectural beauty of her buildings, the acknowledged culture of her people, and her great interest in humanity's betterment, makes this city a shrine that every American should visit. I assure you, I deem it the greatest privilege and honor to be the representative of the profession which is to profit so greatly by the ceremonies of to-day.

This magnificent gift and the dedication of this splendid infirmary marks an epoch in the history of dentistry.

The history of dentistry, unlike that of law, divinity, politics and medicine, is comparatively recent. It is true some of the early Egyptian, Greek and Chinese writers made mention of the care of the teeth, and we have in some of the museums of Europe evidence of early dental operations. It was not until about the first quarter of the eighteenth



century that anything worth mentioning was written. About this time Pierre Fouchard, a skillful and learned Frenchman, wrote extensively on the art and science of dentistry. Possessing some social prestige and an extensive acquaintance with the learned men of other professions, he obtained for dentistry a recognition heretofore unknown.

To the French we owe much for the development and progress of dentistry, and this is especially true of early American dentistry, for it was Le Maire and Gardette, two Frenchmen, members of Lafayette's army, who started dentistry on a secure foundation in this new land. Boston has always played an important part in dental advancement. It was here John Baker, one of the first of the English dentists, located, and who had as an apprentice Paul Revere, of Revolutionary fame. It was here that Isaac Greenwood and Josiah Flagg, the two first native American dentists, studied and practiced, and from Revolutionary days to the present time Boston has been a generous contributor to our profession

The names of John Randall, Iosiah Foster Flagg, Nathan Coolev Keep, Daniel Harwood, Josiah Tucker, Thomas Henderson Chandler, and Luther Dimmick Sheppard, grace the rôle of honor of American dentists. It was in Boston that Horace Wells, humanity's benefactor, the discoverer of anesthesia, studied and for a time practiced. also practiced Dr. William F. C. Morton, the discoverer of the anesthetic effect of ether. Sharing with Boston as a centre of dental activity was Baltimore. Here a coterie of brilliant men, led by Horace H. Havden, and later joined by Chapin A. Harris, did splendid service in gaining for dentistry its proper recognition as one of the professions. Through their zeal and efforts, in 1830 the first dental college was organized, the Baltimore College of Dental Surgery, with Chapin A. Harris as Dean. Not satisfied with providing means of educating dentists for the future. these men realized that the education of the men of their time was also In 1840 the first dental journal was published, known as the American Journal of Dental Science. This was immediately followed by the organizing of the first dental society in the world, the American Society of Dental Surgeons, the outgrowth of which is the National Dental Association, which I have the honor to represent to-day. Close upon these important events came the first dental laws introduced and enforced in the State of Alabama. It was the first law for the regulation of the practice of dentistry in any country.

The starting of a dental college, journal, society and laws placed America far in advance of other countries in everything that pertained to the knowledge and practice of dentistry; and this leadership I am pleased to say we still retain, although in other countries remarkable

15 Jan,

progress is evident. Since that time colleges have increased until to-day we have over fifty in the United States and Canada. The dental journals and the literature of the profession have increased accordingly. Dental societies are to be found in every State, city, yes, and in some sections every county throughout the country. Every State and territory has laws regulating practice. Every effort is being made to raise the standard of efficiency, higher educational qualifications for college matriculation, extension of the college course and subjects taught, that a graduate of a few years ago would hardly recognize as a part of a dental curriculum; yet with this wonderful advancement, reaching almost perfection in manipulative skill and craftsmanship, in spite of our improved curriculum, we find ourselves unable to keep pace with the ravages of the most prevalent of all diseases, dental caries and oral sepsis.

We know positively that the school children in all highly civilized countries show an alarming percentage of diseased mouths, in some sections as high as ninety per cent. We realized long ago that it was impossible to combat this condition by reparative means; we knew that our only hope was in getting at the cause, but how?

Dental Efforts in Behalf of Children. Only a small percentage could be reached through the dental office; the influence through the home was limited. We knew the only way to reach the masses and start our campaign of education was through the channel that all child education and instruction is obtained, namely, the

public and parochial school. We urged first, dental inspection, then class instruction in the care of the teeth and lectures on oral hygiene. But these suggestions met with strong opposition, not only from the laity, school boards and municipal officials, but in many cases by the medical profession. It was not until epidemics broke out in schools throughout the country and the carrier of contagion was traced to the mouth, teeth and tonsils, that the people and our medical teachers realized the importance of our campaign. In addition, a scientific and practical test was made in the Marion School of Cleveland, which demonstrated conclusively that the mental, moral and physical condition of school children was greatly improved by dental inspection, instruction and care.

In 1911, when preparing the annual message for the Illinois State-Dental Society, I wrote to the President of the School Board and the Commissioner of Health of every city in the United States and Canada of over 35,000, of which there are about 130, asking them the following questions:

- I. Are the children of the public and parochial schools of your city instructed in the care of the teeth and surrounding tissues?
 - 2. Are the teeth of these children examined by a dentist?



3. Have you any free dental clinic in your city where the teeth of the poor are cared for?

I received sixty-five answers.

To question 1—No, 40; yes, 25

To question 2—No, 52; yes, 13.

To question 3—No, 42; yes, 23.

In answer to question 3, the twenty-three answering yes were practically all from cities having dental colleges. To-day, but three years later, if we were to send out this inquiry we would find that not only in practically all the large cities, but also in scores of the much smaller cities or towns they have inaugurated dental inspection, class intruction, and in many cases some means of caring for the unfortunate. In many of the large cities provision has been made for from five to fifteen clinics, and appropriations for this purpose run as high as \$20,000 yearly. Surely this is making progress, and gratifying as it is, yet how inadequate when we consider the tremendous demand and need! Fortunate indeed is the City of Boston, and blessed are the children of this great city, that they have such a citizen and such a benefactor as Mr. Forsyth, who has given this magnificent infirmary.

Not only have the mouth and teeth been the carriers of contagion and disease to children, but also the cause of many diseases the origin of which was until recently unknown. Hunter, the eminent English physician, claims that a diseased mouth is the most prolific cause for much of the chronic infections, diseased glands, intestinal disorders, nephritis, arthritis, pulmonary affections and heart lesions. Before sixteen hundred physicians and dentists in Chicago a short time ago Dr. Charles Mayo read a paper entitled "The Mouth as a Focus of Infection." He closed in this manner: "The next great step in preventive medicine must be taken by the dental profession; will they take it?"

In answer to that question, our profession, from border to border and from coast to coast, is attempting it, but we must creep before we walk. We have not at present the many advantages that our medical colleagues enjoy. We have no hospital interneship; no centre of dental thought and instruction in Vienna, Berlin, Paris, London and Edinburgh; no great postgraduate schools; at the present time no Rockefeller Foundation for Dental Research, no Carnegie Institute, no Johns Hopkins, with their unequalled equipment and unlimited resources. However, we have an army of earnest workers, fully conscious of the great responsibilities placed upon them, who are making every effort to equip themselves for the great work, who are forming study clubs and postgraduate classes in very many of the large cities, where scientific apparatus and laboratory facilities are available. We have State and local societies engaging

eminent scientists to carry on special research. We have a National Dental Association which has grown from 900 two years ago to 14,000 to-day, and which has as component bodies the State and Territorial society of every State and Territory in the Union, and these State and Territorial societies have as component bodies all local, district or county societies wthin the State, so that to-day the dentist in the remotest hamlet is in touch with the progress of the profession. We have in the National Dental Association a Scientific Foundation and Research Commission composed of twenty-four of our best thinkers and workers, who are doing excellent work and who have already made valuable contributions to our science, and who fully expect within the next year to have a fund of \$200,000 for research purposes. And to-day we have another great aid, the Forsyth Dental Infirmary, which I am sure will prove a great stimulus and inspiration to other good men who, in the near future, will build and endow similar institutions in other great cities of this country.

To-day I feel that our profession is contributing a full measure to the great movement which is going on toward child welfare, race betterment and human uplift.

Mr. Forsyth, in behalf of the dental profession and in behalf of our little patients, I offer you our thanks, and I wish you God's blessing.

Address by Edward F. McSweeney, Chairman Crustees of the Boston Consumptives' Hospital: Chairman the Directors of the Port of Roston.

One inflexible, but little understood, rule of nature is that man can get almost anything in this world if he is but willing to pay its particular price. Riches, power, grandeur, are all for sale in the world's market place, with the price tags plainly marked, unhappiness, disappointment, regret. The law of compensation is seemingly inexorable. We are free agents, and as we choose, so are we. It is only once in a great while that visions from Heaven come to the wealthy, opening to them the real road to personal happiness, and enabling them to use their wealth to prove that the real brotherhood of man is not an empty dream, and that the beatitudes are something more than a beautiful collection of words.

Among the purchasable assets of life is public health, and in no other department of financial investment is the dividend so enormous or the return so speedy.

The opening of this Forsyth Dental Infirmary, following the establishment by the Boston Consumptives' Hospital Department of a hospital at Mattapan, for tuberculous children, whose presence in the public schools constitute a menace to their fellow pupils, gives opportunity to come true the long cherished dream of an efficient partnership between



the various agencies having charge of the health and education of children in this municipality. This dedication is indeed the beginning of a new era in the fight for disease prevention.

The True Starting Point in Prevention of Disease.

No argument is needed to make clear the necessity for preventing disease, prolonging life and stopping premature deaths. We may apply measures of relief for the adult sick and adopt the necessary courses for preventing the spread of disease, but if

we are really to conquer this unnecessary waste we must begin with the children of this generation who are now in the public schools. We must consider not alone their immediate physical needs, but the most important, their essential ultimate needs.

Unless the present death rate from tuberculosis is reduced, 12,000 children of the 128,000 scholars now in the Boston public schools will die of tuberculosis. A large number of these victims succumb before reaching the age of twenty-five, without giving anything in return to the State for the money spent on their education, with this number of human units transferred on the ledger of human efficiency, from the asset to the liability column. For those who will die without becoming productive, the city of Boston will expend three million dollars on elementary education alone, so that if we consider the object of education as being the training for efficient citizenship in its broadest sense, these three million dollars will have been wasted.

Inedical
Inspection in
the Boston Schools.

Inspired by the contemplated work of the Forsyth Dental Infirmary, three years ago the city of Boston was induced to begin the work of medical inspection in the public schools on a really efficient basis. It was believed that if parents were advised

of the physical defects of their children, these defects would be remedied through their family physicians or the existing clinics. The result of this medical inspection showed that 65 per cent. of all the children of the public schools had physical defects, 80 per cent. of which centered largely in the mouth, such as diseases of the teeth, etc. In the school year 1912-1913 there were 122,459 defects noted, and of this number, during the next school year, the parents had, through their family physicians or the existing clinical agencies, corrected 52,042 defects, or 42 per cent. of the total defects found. Every one of these corrected defects means that the child will have a better chance to escape or conquer disease in later life, after the school days are over.

Scope of Work of the Forsyth Infirmary.

During the last three years, most of the work for the prevention of disease, especially among children, has been done in anticipation of the opening day of this infirmary, which with its splendid facilities will be able to take care of all the children who

19 Jan.

may need assistance, but who cannot afford treatment through their family physician. With the establishment of this infirmary, so wisely conceived and so patriotically carried out, the community can feel assured that every child in the Boston public schools will have all existing curable defects remedied before leaving school, thus giving the child a straight road from the school to its chosen path in life.

To accomplish the best results, it is necessary that all the various official bodies working in Boston for health and disease prevention should co-operate. We now have a hospital for tuberculous children, a dental infirmary and special schools for children deficient in various ways. From this beginning, all the children in the public schools should be divided into three groups.

Group I. Hospital cases.

Classification of Children.

Group II. Deficient and sub-normal children.

Group III. Normal children.

Group I will comprise all those children who have demonstrable tuberculosis or mental diseases. As fast as a child is found to be placed in this class, it should be placed under the jurisdiction of the hospital department for treatment.

Group II will comprise the deficient and sub-normal, who will be provided for at this dispensary and also at the fresh-air rooms or preventorium, which should be extended as the demand becomes apparent.

Group III includes all those normal children in the public schools in whom no defects have been discovered, or such defects found as may be remedied by existing clinics followed by the hygiene course in the schools.

The authority over Group III shall be wholly in the School Department, the examination of children to be made by the school medical inspectors.

All children suspected of being tuberculous or suffering from some disease requiring hospital care should be closely watched and transferred from Group III to Group II and Group I when necessary, and vice versa as children improve.

Beginning at the child's entrance to school, its physical condition should be watched from year to year. When defects are found, they should be called to the attention of the parents and a reasonable time

given for application of the remedies. Parents of defective children who will not remedy defects when called to their attention are in the minority, but this is one of the most serious parts of our problem, and its solution cannot be considered until we have a more definite knowledge as to whether the parent's failure to comply with the recommendations



of the school physician is due to indifference, ignorance, or poverty, or a combination of all three. When authentic information is secured on this point, we can proceed with certainty, but until this knowledge is obtained, any step to substitute the city for the parent by indiscriminate feeding, etc., is fraught with the most dangerous consequences. If food is a necessary part of the treatment for children in Class II, it should be provided and paid for by the parents, and if necessary supplied by the school at cost. Children who need food and clothing and are unable by real poverty to get either should be supplied temporarily, at least, by private charity until the exact need is ascertained and the city's duties in the matter agreed upon.

In looking after the education, comfort and happiness of its people, Boston is to-day in the first class among the cities of the world. If only a fraction of the results which we expect to obtain from the opening of the Forsyth Dental Infirmary is achieved, it will mean a wonderful advancement in the effort to safeguard life and prevent the waste of needless disease in the coming generation, the like of which has never before been accomplished.

We love Boston because of its humanity. If to-day it seems narrow and provincial, to-morrow it shows its greatness by some noble act of self-sacrifice and devotion to the common good. And of all the worthy benefactions to uplift the lives of our people by giving them free art, music, breathing spaces, hospitals, etc., none will carry out more specifically the command of the Sermon on the Mount than the gift which to-day is so appropriately inaugurated.

Address by Dr. William J. Gallivan, Commissioner of Health, and Chief of Bureau of Child Hygiene, Boston.

The widespread prevalency of dental defects among children would never have been known were it not for the system of school inspection which, beginning in Boston in 1894, has been copied throughout the country and is now practiced in every city of importance in the land.

Improved school inspection required a physical examination; and so, for the past three years, a physical examination has been made annually of practically every school child in Boston. This test includes examinations of heart, lungs, eye, ear, nose, throat and mouth; spine, joints and skin. Our principal interest to-day is the condition of the teeth of school children in Boston, as revealed by these examinations. In order to secure uniformity in diagnosis, school physicians were required to record as defective teeth all cases of dental caries in primary and secondary teeth, and malocclusion of secondary teeth; missing and primary teeth and properly filled secondary teeth were not recorded as defective.

The result of these examinations shows that 46 per cent. of the school children of the city have defective teeth. Children attending the primary and grammar schools were found to be more defective than pupils in the high schools. In the primary schools, 55 per cent. had defective teeth; in the grammar schools, 50 per cent., and in the high schools, 33 per cent. This last item opens up a fruitful field for speculation. However it may be decided on further investigation, it is only conservative to say that dental defects in grammar school children will have to be considered as a factor in the failure of many of them to make the high school.

Similar examination made in the City of New York shows 58 per cent. of the school population afflicted with defective teeth. In Chicago, 40 per cent. are so recorded. In short, a compilation of statistics made by Prof. Wood, of Columbia University, places the school population of this country at 20,000,000, and of this number 10,000,000, or 50 per cent., have defective teeth. From such data we can reasonably infer that defective teeth among schoool children is a condition not peculiar to Boston alone, but is widespread throughout the whole country. Sound teeth appeal to the average person for their cosmetic value. That dental caries may be the dwelling place for all kinds of bacteria that some day may lay him low probably has never caused him a thought. And yet for some time physicians have known that in the etiology of diphtheria, scarlet fever, pneumonia, tuberculosis, and other respiratory diseases, dental caries play an important part. The wonder of it all is that we have remained inactive for so many years.

Hospital facilities in this city for the care of defects other than teeth detected in school children are ample and sufficient. Up to this hour, hospital facilities for the care of dental defects have been wholly inadequate. Small wonder that those who believe that public health is one of the greatest concerns of government have had their attention attracted to this condition. And so from time to time efforts have been made to provide such dental facilities through municipal appropriation.

Such are the conditions which greet the opening of the Forsyth Dental Infirmary. The relief which this infirmary will afford is incalculable. Of equal importance is its opportunity for the education of countless numbers who can never hope to enter its doors on the value of the early care of the teeth and of the disaster which inevitably follows their neglect.

We welcome this addition to Boston's charity. In its work of preservation of the teeth it will contribute to a large degree to the making of better men and better women. And among all the forces at work in this city for the making of good citizenship, this institution will prove an able ally, and will easily take its place among the most valuable.



American Society of Orthodontists. Discussion of the Paper of Dr. Ottolengui.

Dr. F. C. Kemple, New York City. I hardly know how to discuss this paper. There is so little that is definitely known about root resorption that we can do little more in a discussion of the question than to theorize as to its cause; but

when we meet it in practice we sorely realize its effect. The essayist has given us in this paper additional clinical facts as he has collected them, but he has been unable to throw any light on the cause. The problem remains to be solved, and until it is solved, root resorption must stand as a serious obstacle in the way of successful treatment of a certain class of cases of malocclusion. The percentage of cases in which it becomes a factor is great enough to make it a question of considerable importance, and I express again the hope that Dr. Ottolengui will continue to collect clinical facts bearing on this subject and that he will present them to us in future papers.

The fact that the pulp continues to live during the resorption of the roots seems to indicate that the process might be identical with the process of resorption of deciduous tooth roots. As far as trauma is concerned in this process it may be a factor in a few cases. Excessive stress from occlusion on one or two teeth is, in my opinion, a very great factor in stimulating the rapidity of the resorption process when it has once started, and I believe that excessive stress of occlusion alone, if it is continuous for any considerable time, is sufficient to start the resorption.

The radiographs that were thrown on the screen all show the crypts of erupting teeth to be in close proximity to the roots that are being resorbed. The resorption in these cases may be caused either by the slight pressure created by the follicle surrounding the crown of the



erupting tooth, or it may be the action of the crypt itself. It is possible for very slight pressure to stimulate a giant cell activity in the root that will destroy it, just as it is possible for slight pressure of soft tissue in other parts of the body to cause resorption of bone. Examples of bone

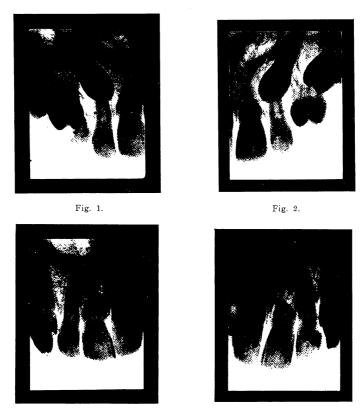


Fig. 3. Fig. 4,

resorption from tumors, aortic aneurisms, etc., etc., are very common; frequently the body of the sternum will be resorbed until it is completely perforated from the slight pressure produced by an aortic aneurism. There seems to be a similarity between these two processes, and it might throw some light on the subject if our pathologists could examine specimens of both and note the possible relation.

One of the disappointing features of this process in the cases that have been under consideration is that in some of them the resorption seems to be progressive even after the pressure has been relieved and all disturbing causes apparently removed. It may not be as rapid, but in



one or two of the cases referred to by the essayist it was continuous to the point of the tooth being lost. In such cases, instead of allowing the resorption to continue, I have thought it might be good treatment to amputate the resorbing portion of the root. By an operation of this kind the giant cells that are causing the trouble could be removed, a healthy wound would be created and further destruction of the root might be

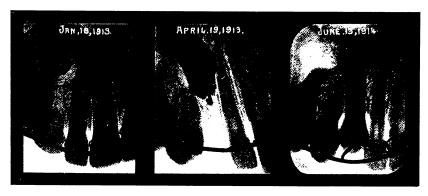


Fig. 5.

Fig. 6.

Fig. 7.

prevented. Such an experimental operation is, in my opinion, entirely justifiable in all cases where the resorptive process is obstinately progressive.

Description of Illustrations.

In Fig. 1, the crowns of the cuspids were erupting in a diagonal position in front of the roots of the laterals, and were pointed toward the apices of the roots of the centrals. The centrals were not

being moved; they are not attached to the appliance, but, nevertheless, they became very loose and I became much alarmed. Pins had been set in the crowns of the cuspids and they were being moved distally, away from the roots of the centrals. The illustration shows the resorption of the root of the central, while the root of the lateral is practically intact and not affected so far as we are able to tell by the radiograph. The laterals were tipped labially by the crowns of the cuspids passing in front of their roots. The crowns of the cuspids, judging from the X-ray, are much closer to the roots of the laterals than they are to the centrals, and yet it is the roots of the centrals that have suffered.

Fig. 2 shows the right central and lateral of the same mouth.

Dr. Federspiel.

How old was that patient?

Dr. Kemple.

About fourteen. Figs. 3 and 4 are radiographs of the same case taken only a few days ago, and seem to show the resorption to be progressive.



A Member. Were the teeth ever fully developed?

I cannot say, but I should assume that they were. Fig. 5 was made in January, 1913; the patient was fourteen years of age; the left deciduous cuspid

was in place and showed only slight resorption. The crypt of the erupting cuspid is fairly well outlined, and the apex of the root of the first bicuspids has begun to resorb. Fig. 7, the third of this series, taken June 13, 1914, shows fairly well the amount of resorption and does not indicate that the destruction in this instance has been perceptibly progressive.

Dr. Ottolengui. How do you account for the light area over the bicuspids?

I believe the light area marks the location of the permanent cuspid before it was moved. The cancelous tissue here has not yet become as dense as in the other portions where it has not been disturbed.

What is the age of that patient?

Dr. Kemple.

Between fourteen and fifteen years when the first radiograph was made. In this case, if the resorption of the root of the first bicuspid were shown to be progressive, I believe it would be a justifiable operation to amputate the apex.

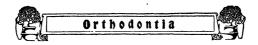
I have been working on a similar line in relation

Dr. & J. Grieves,
Baltimore. to the resorption of the cemental apex in pulpless teeth, with much the same results as Dr. Ottolengui shows here to-day. Some of these cases were reported in Philadelphia, but I do not care for these to appear in print yet,

ported in Philadelphia, but I do not care for these to appear in print yet as the findings have not been verified.

I believe that the cementum of the root of every tooth, the pulp of which has been successfully devitalized and the root filled, will be found to be vital, and that if you make a section, a large part of the pericemental apex, particularly that near the peridental membrane, will be living cementum. I have been cutting many sections and have been fortunate enough to see some made by Dr. Fletcher, of Cincinnati, and I believe that in every case there is a certain amount of resorption of this cementum, and the type of resorption found is the physiological type of rounded bays, not the jagged absorption common to infected or necrotic areas. I am not speaking of infection, but of normal resorption such as occurs around the roots of temporary teeth. The reason I mention this is because the types are so similar and the pictures are very like those shown by Dr. Ottolengui.

Dr. Ottolengui spoke of pressure as one of the causes of root resorp-



tion: It occurs to me that there were no cases reported of children who were not in a way under pressure. That is the reason why they consult you; all cases requiring orthodontic treatment are at some point impacted or under pressure. The formation of normal bone is a wasteful process indeed; it is laid down only to be absorbed again and again. You have these trophic conditions in the alveolus of every patient on whom you work and it seems to me that pressure or a little more blood to the part might easily produce root as well as normal bone resorption.

Dr. Kemple's remarks regarding aneurism and his statement that the hard tissues are always subject to and under the control of the soft tissues has been amply proven, so that a soft growth like an aneurism can produce bone resorption, and we can readily understand why an advancing tooth would not necessarily need to be in actual contact, and why such stimulation of the tissues would increase blood to the parts and the absortive processes would go on, we might say normally.

The condition of the cementum directly at the pulp entrance is another feature to be noted in the slides, as compared to my slides of pulpless teeth with vital cementum. In these contrasted with those I have seen, the resorption process seems to dip down into the canal, and in the instances where I knew the pulp had been removed, there was always a "dimple" in the pericemental apex. I have seen this in adults and some of it in children in extracted teeth, although I have never had the conception that the whole root, including the dentine, might be riddled or interstitially absorbed as Dr. Ottolengui has shown it to-day; neither did I think the process was so general.

These cases occur in some children, but not in all children, and why should it not occur in every child presenting for treatment? They all come to you because they have the same pressure conditions at some point. I do not want to ride a hobby too hard, but I believe that where this resorption occurs the children are subject to calcic waste. The intake and output of calcium is unbalanced. Calcic waste is one of the great questions before the medical profession to-day. Even in adults, if we have more calcium thrown off than is retained, a very serious nervous breakdown occurs, finally resulting in tetany. Children should store calcium and when calcium metabolism is disturbed there is always some form of serious denutrition. This is the case in rickets, and many intestinal conditions of childhood, as well as marasmus, have been relieved by feeding the child calcium lactate. A great difference has also been noticed in all the nervous symptoms, as well as in the skin and hair, and I believe the bones and teeth would be greatly benefitted, but it is to be understood that this is not the old idea of forcing in a certain percentage of insoluble lime, but rather a stimulation of the whole metabolism of calcium

27 Jan.



Having had much experience, and being a close observer of such conditions as Dr. Ottolengui has referred to, the implantation and replantation of teeth, I want to call attention to my discussion of the subject published in the Transactions of the American Dental Association (years ago), which is verified by further experience.

In the case of a tooth that is to be replanted or implanted, it is important to know how best to deal with the root.

I would first like to ask Dr. Ottolengui if he *implanted* or *replanted* the tooth he referred to, and if the root in his case was dressed away with stone or other means, or whether the peridental membrane was scraped from the root or not, or the surface left merely as Nature had prepared it?

In my previous discussion on the subject of implanting and replanting teeth and the value of the operation, I brought out the point that wherever the roots were dressed away or were injured by the use of the forceps, or other injury, as from filing, grinding or scraping the root, so as to remove the peridental membrane; or where there was injury of the apex in filling the pulp canal, that would be the point where the irritation of the soft tissues would cause absorption of the root to begin. In *The American System of Dentistry* and other text books are numbers of illustrations of roots of permanent teeth that have been implanted and replanted, showing the location and extent of their absorption.

In my transplanting and replanting of teeth I became convinced from the results, that when the tooth is extracted by the forceps which generally injures or roughens the surface of the root, if the injury is below the neck of the tooth, it becomes an irritant, and when implanted absorption starts at that point, or at any part of the root where the surface is injured, as when there is any filing of the apex of the root, the absorption will begin there first.

How does Nature retain the replanted tooth in its socket? It is supported by granulation tissue developed about it which enters the normal vascular openings of the canaliculi of the cementum, which are always present on the surface of the cementum.

Those that have been interested in the use of sponge grafting in the healing of wounds to prevent the tissues from wasting more than necessary, know how soft tissue travels through the pores of the sponge, like fingers, in sizable threads, and as these pass through the sponge in all directions they close the wound. I have often pulled on the sponge to see the network of these threads, passing into the sides of it, a few days after its insertion. As I said, if there was anything that would cause their irritation, as a roughened surface, the tissue would become abnormally congested.



Through the vascularity of the granulation tissue entering the vascular openings of the cementum, bone may be deposited extending into the openings of the canaliculi, which would cause bony ankylosis of the tooth. The latter is not an uncommon occurrence.

There is no renewal of life in the tooth resulting from implanting, except the life in the granulated points that enter the vascular openings of the root.

If the root of a permanent tooth becomes absorbed, it is the result of an encroachment upon it, causing irritation. Any irritation of normal tissue causes engorgement and brings about enlargement of the blood vessels which surround the irritated part. From irritation an abnormal amount of blood is concentrated there, with an increased blood pressure at the point, which would cause force on the inner surface of the alveolar process, and this pressure through the vascular net work of the bony portions separating the vessels would cause absorption. In other words, the vessels become swollen, which gradually breaks down the bony walls surrounding the vessels, resulting in the loosening of the tooth in the alveolus. This form of absorption is apparent when a tooth is being moved by force applied by the orthodontist.

I want to say a word about the result of operations by the rhinologist. Often the rhinologist in his effort to increase the capacity of the nasal cavity removes more or less of the bony tissue, which encroachment, near or adjacent to the root, often causes a congestion or inflammation that extends to the peridental membrane, inducing a congestion, although he may not reach the socket enclosing the root, but be some distance from it. I have known a number of cases where the removal of the bone by the rhinologist has resulted in the death of the pulp and produced more or less further bone absorption. This is important, since we know that all the tissues are subject to absorption, and as they are subject to absorption we should always discover the irritant early. If a tooth has taken malposition in its development from the germ, as growing forward in the line of the arch, it would lead us to discuss the question as to what is the force that brings about the eruption of the tooth. It is important for us to know. I think the substance of the covering of the enamel portion of the tooth after that part of the tooth is formed is a calcareous deposit, which becomes an irritant to the surrounding tissues, and the inflammatory action causes absorption of the bone or process adjacent to it. and later of the gum tissue.

In all X-ray views of non-eruptive teeth a space is shown between the enamel of the tooth and the bony covering. In other words, the deposit acts as an irritant and absorbs the bone surrounding it and permits the teeth to advance in its eruption. There being at the same time

29 Jan.

development of the root portion, this assists in forcing the tooth forward. Irritation in these parts is naturally depended some on the physical condition of the patient.

Before the discussion is closed there are one or Dr. James Ernest two points that need to be cleared up. We have Walker, New Orleans, heard that fibres grow into the cementum to hold the tooth in place. I do not think that is what takes place. There are fibers, but the hard tissues build around the fibers. In fact, I think there is throughout life, in normal conditions, a perpetual laying on of minute layers of cementum, in that way affecting continually new attachments of the fibres which hold the tooth in place.

The other point is the question in relation to absorption of one tooth, due to the encroachment of another. It has been said here that they are in contact. If there is absolute contact, the only way you can have any waste of tissue would be by abrasion, the mechanical wear due to the friction of one tooth upon another when in contact. It seems to me, what we have in the case illustrated is a resorption which necessitates soft tissues being in between. The tissues are irritated until the cells have taken on giant form and have caused absorption.

For those who are interested in sponge grafting and who would like to know how the soft tissues act Dr. U. B. Jackson. in sponge grafting, I will say that Nature sends out a granulation tissue like fingers, and these pass through the sponge. In my experience I have often pulled down upon a tooth and have seen the granular tissue putting out fingers, going forward and penetrating the openings, and if there is an irritant there that tissue becomes congested.

I did not have reference to the arterial loops in embryonal tissue which has just been referred to. A Dr. Walker. tooth is not held in place by these arterial or capillary loops, but by fibrous tissue. Tissue embryonal in character is seen entering resorptive areas, and it is still there when the resorption area is being refilled, but that is not what holds a tooth in place. The redeposit of cementum encases fibrous tissue which becomes Sharpey's fibers.

Dr. Jackson.

Dr. Walker.

the original dentin.

the pulp.

Do you consider the root as dead or as having living tissue in the cementum of the tooth?

As alive. Resorption goes through the cementum into the dentin, but dentin does not refill the areas; they are filled by cementum even when in the area of Dentin is not built outward, but always inward by

You are speaking of autogenous natural teeth, while Dr. Jackson was talking about the retention of Dr. Ottolengui. replanted teeth and teeth that are actually dead.



I was not speaking of implanted, replanted, nor **Dr. Walker.** of dead roots where we have pathologic absorption, but of physiological resorption which is under discussion and of teeth that are being regulated. This closely resembles, microscopically, the resorption which takes place in reconstruction of the alveolar process and other bone.

Dr. H. D. Keeler, Des Moines, Towa. I am very glad to have heard this paper. I wish to mention a case of an absorbed left lateral in the mouth of a boy twelve years of age. I was in doubt whether this was a deciduous or a permanent tooth.

The crown is that of a permanent tooth, and after hearing this discussion I am positive it is a permanent left lateral with about one-third of the root resorbed.

The cuspid is mesial of normal, lying obliquely in the arch, the crown being in contact with the root of the left central, and in contact also with the left lateral, the root of which latter is one-third absorbed.

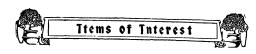
I am very much pleased that Dr. Kemple presented the case which he did, because it accentuates what I said with reference to the desirability of having some radiographs taken before treatment. It must be a source of gratification for Dr. Kemple to know that the tooth which showed resorption had not been interfered with by him, and it will be a double gratification if the patient should ever lose this tooth to know that Dr. Kemple could not be held responsible.

I am sorry Dr. Grieves made some remarks and then forbade us to print them in full. It seems to me, there is a dissimilarity between the cases to which he refers and the cases which interest us, which either he has overlooked, or else did not allude to in his discussion, and that is, that these children's teeth have living pulps in them, and not only did these pulps remain alive during the progress of this disturbance, but they have remained alive after the cessation of it.

I showed on the screen in one case two central incisors, the resorption of which has not progressed in four years. Those teeth are now quite firm. In spite of the fact that they have no roots, they are perfectly healthy in color and are living teeth.

Another point I would like to accentuate is this: There is a clinical aspect in all these radiographs which differentiates this particular kind of resorption from the usual morbid resorption. In morbid resorption we not only have resorption of the root itself, but also resorption of the surrounding bone. Here we appear to have two opposite conditions progressing coincidentally. We have resorption of the root which, of course, would leave a space, were it not for the fact that new alveolar bone fills in that space, as rapidly as the root is shortened. Moreover, unlike new bone which fills into a space once occupied by a granuloma—this new bone cannot be differentiated with the X-ray, from the surrounding bone. It

31



is this particular clinical aspect which is so similar to the resorption of the temporary teeth.

Dr. Kemple.

That is a physiological process.

Dr. Ottolengui.

It is similar to a physiological process, but whether it is a physiological process or not, I do not know. I do not see how it can be a physiological

process, because what is physiological is according to routine plan. It cannot be according to routine plan that permanent teeth should lose their roots. There is a close analogy between this particular aspect of these two conditions, namely, the bone is built in as fast as the root is absorbed, and the pulp remains alive.

Dr. Eletcher's slides present exactly the same condition in pulpless teeth, where the apex has not become necrotic nor infected and mine will show the resorptive areas and that secondary cementum or bone does develop; it is sometimes hard to draw the line between cementum and bone.

Dr. Ottolenaul.

I think we can in implanted teeth.

Dr. Grieves.

Am I to understand that you distinguish between the resorptive processes and the deposit of cementum or bone that takes place.

Dr. Ottolengui.

I think that the condition of the surrounding bone is quite different in infected cases, from what is seen in these cases of young teeth resorbed without death of the pulp. And I think the clinical pictures of both root and alveolar bone, in cases of implanted or replanted teeth, as again different from either.

Fletcher shows large areas of resorption near the apex containing a secondary deposit of cementum or of bone, but they are not all large, sometimes just a hare deposit of secondary bone following up the property of the secondary bone following up the secondary bone foll

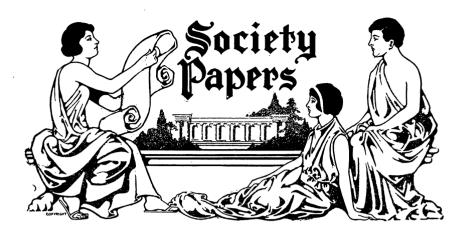
a bare deposit of secondary bone following up the resorption of the tooth.

In conclusion, I would like to say one thing

Dr. Ottolengul. more: Heretofore we have been studying resorption

by sections, always dealing with the dead subject, and our past knowledge has been based upon what the microscopists have told us that they have seen in their pictures. We have had introduced to us to-day another method of getting pictures, and these pictures are from living subjects, and while one or two or three of them may be distorted and may be deceptive, that is equally true with the microscopic slides. Some of them are most deceptive.

The vital part of the subject has not been touched on in discussion. No one has considered the question of whether to check up with radiography before deciding on a plan of treatment. So all of you gentlemen who have not had a beautiful child under your care, with two beautiful central incisors, which lose their roots while under treatment, take my advice and radiograph freely all doubtful cases before you start, and thus know the conditions.



Root Implantation, Physiologic and Mechanical.

By H. J. Kauffer, D.D.S., New York City.

Read before the New Jersey State Dental Society, Ocean Grove, July 1914.

Responding to the wave of enthusiasm which has awakened the interest of the dental profession to root implantation, mechanical and physiological, and also transplants, I have conducted a series of research experiments upon lower animals to ascertain, if possible, an explanation for the variance of clinical findings in this work.

If one studies the literature on root implantation he is confronted with a wide difference of opinions, with a general conclusion negative to success. These findings are mostly all clinical and give no satisfactory explanation for failure. There are a few reports of retention of roots for a period of years, but invariably the operation has been abandoned owing to the large percentage of failures.

Fones. Civilion Fones, of Bridgeport, in 1876, implanted continuous gum teeth. He removed the platinum pins and ground ridges in the porcelain roots of the teeth which he implanted. He claimed to have had successful retention; however, the method was abandoned.

Younger. Dr. Younger (1) has at various times reported cases of human tooth implantations. He always used the human tooth, not necessarily a freshly extracted tooth.

Dr. Amoedo (2) advocates slight decalcification of the root previous to implanting. "Union is probably due to partial absorption of root and bone tissue

33 **Jan.**



forms. The tooth is thus ankylosed; in some cases there is a fibrous union."

Dr. F. W. Allen (3) reported cases of human root implantations retained from six to ten years—however, they were supported by a bridge cemented

to sound roots.

Rothman and Bilsko.

Drs. A. Rothman and G. Bilsko (4) advocates: "Under certain conditions the extraction of a tooth for filling, and when operation is completed they replant the tooth." They report, "174 replantations

in a practice of seven years." "86 successful cases have been noted that have been seen after two to seven years." "A great many patients did not present again, and in some cases the replanted teeth had to be removed owing to root absorption. In 46 cases of replantations without root canal fillings, a lower percentage of successful healing was noted than in replantations of treated roots."

This statement would lead one to believe that their work was not conducted in a scientific manner.

Whereas, one may attempt for experimental purposes one or two teeth without removal of pulps and thoroughly sterilizing and filling root canals, when twenty-five per cent. of their work was performed in this manner, your essayist believes that their report of fifty per cent. success in 174 cases a creditable showing for the vitality of the human tooth in replantations.

Dr. Ascari (5) recommends for "relieving the replant from stress while healing" that "the articulation is temporarily raised by a cast aluminum splint until the replanted tooth has become firm." He emphasizes the importance of having the replant "in perfect articulation."

Dr. Sabba, Danzig (6)—"In transplantation and replantation." Dr. Sabba's technique: "The alveolus from which the tooth has been extracted is packed with iodoform gauze and the patient is dismissed, the root canal of the tooth is thoroughly cleaned and filled. The pericementum is entirely removed with a scalpel and burs. The root is left intact, and the tooth is laid in a very dilute carbolic acid solution until the next day."

"When the tooth is introduced it is ligated to the approximating teeth. After a week the ligature is removed. The tooth begins to become firm after that time, being absolutely rigid after about three months. So far no means has been discovered of preventing the resorption of the tooth root, which after a few years produces loosening and loss of the



tooth. Nevertheless, replanted teeth have remained in the mouth for ten and more years, thus amply justifying this method of tentative preservation."

Your essayist believes Dr. Sabba's suggestion of packing the socket with iodoform gauze to be commendable. However, with the removal of the pericementum, how can one expect other than resorption of a root denuded of this, its protecting membrane?

Schroder. Prof. Dr. Schroder, Berlin (7), found that when various metals are implanted in the jaws of experimental animals in some exceptional favorable cases the foreign body is surrounded with a connective tissue sheath with little or no tendency to ossification. He states that from his findings it appears that "the implantation of material foreign to bone offers no prospect of real and lasting success, no matter whether the artificial root is introduced into an alveolus covered with periosteum or directly into the bone."

Ivory, on the other hand, is more successful, as it enters into firm union with the bone and is resorbed either not at all or slowly. He reports very satisfactory results from ivory roots implanted in empty alveoli. He, however, makes this statement: "To prevent the possibility of absorption, he strengthened the ivory roots with gold bars imbedded in the roots." Therein your essayist does not see how this would differ materially from metal cribs, other than that the core is of ivory rather than of bone, as in the Greenfield method. Dr. Schroder's paper is illustrated by radiographs and sections.

Bone Plating and Bone Grafting.

Chomas.

The literature on bone surgery, pertaining to bone plating and bone grafting in general surgery, which is receiving such wide recognition at present, is most confusing, and whereas it is highly essential that we thoroughly comprehend what takes place in

the repair of bone to intelligently discuss root implantation, I have made a careful study of experimental and clinical reports of this subject by eminent surgeons, and will give you a synopsis of their findings, first considering the use of metal in connection with bone.

Prof. Lang, of Munich (8)—"Support for the Spondylitic Spine by Use of Buried Steel Bars Attached to the Vertebrae" These bars were coated with tin.

Dr. H. J. Thomas (9), in speaking of this, says:

"The idea of metal supports beneath the skin is not indeed successful, but is interesting as the forerun-

ner of the bone supports which must now be regarded as successful."

35 **Jan.**



Your essayist sees here that in general surgery bone grafting, which is at present receiving most enthusiastic attention, appears to be passing through an analogous cycle to root implantation in dentistry.

Dr. Thomas reports out of 450 fractures at Cooks County Hospital Clinic, those in which Lane plates had been used (Lane plates are metal



Fig. 1. Radiograph of Lower Jaw—Experiment 2.
(a) Implanted Human Root. (Note sequestrum incapsulating absorbing root.)

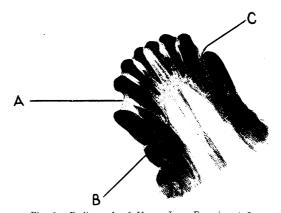


Fig. 2. Radiograph of Upper Jaw—Experiment 2.

(a) Sheep root nursed upon the blood of the dog. (b) Platinum crib. (c) Space where root not nursed upon the blood of the dog was lost.

plates used to immobilize a fracture), 47-7/19 per cent. were removed in subsequent operations.

Ochsen. Ochsen (10) believes success or failure ochsen. is entirely a question of "doing bone plating right or wrong." He says: "Dr. Percy at Augustana Hospital has had 108 consecutive cases in which bone plating was used with only five unsatisfactory results. Dr. Lane, who first suggested the use



of metal plates, to immobilize fracture, it is claimed, has less than four per cent. of failure. However, in the Lane technique asepsis is maintained to a degree which would be absolutely impossible in operations within the mouth."

W. C. and C. P. Brown.

Drs. W. L. and C. B. Brown (11), of El Paso, in extensive experiments in bone grafting, state: "Wherever wire was used there was an absorption of the graft in the neighborhood of the wires, whether

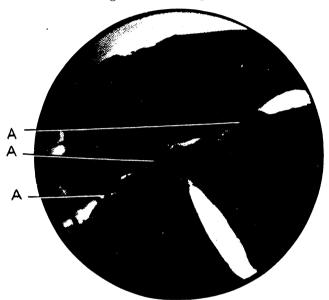


Fig. 3. Transverse Section of Sheep Root—Experiment 2.
(a) Peridental membrane in co-aptation with tooth and bone.

the bone was drilled through or not." This is also true in the use of wires in kindred work done by McWilliams (12).

On the other hand, Sir William McEwen (13) in three experiments shows where new bone entirely covers silver bands placed around the shaft of the radius denuded of periosteum. However, in this instance, unlike the case above mentioned, and where metal is used in root implants, no pressure was brought to bear upon the bone at the point of metal contact. McEwen makes it plain that metal in an implant will not stand stress.

Barth. Dr. Barth (14) stated that: "All living transplanted bone died immediately, whether with or without perioteum, and that it was unimportant whether living or dead bone was used."



Dr. Axhousen (15) says: "There can be no doubt that fresh bone tissue planted in a defect dies throughout, but that the periosteum remains alive and capable of reproducing bone tissue, and it is probable that the bone marrow retains its vitality."

Dr. Beattie (16) says: "The periosteum is composed of two layers, the inner being highly vascular and containing numerous osteoblasts. The

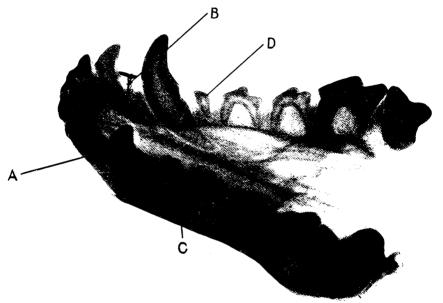


Fig. 4. Radiograph of Upper Jaw—Experiment 3.

(a) Platinum iridium crib. (b) Platinum iridium spiral. (c) Right bicuspid transplanted in secket of left bicuspid. (d) Bicuspid of another dog transplanted.

power of new bone is not, however, limited to the periosteum, but is also exhibited by the tissue in the cancellous space and the medullary cavity."

Dr. H. S. Weider (17), in a study of the healing of fractures in 1907, observed that: "The bone cells are confined and also slow to react. They only form bone when liberated. The periosteum is early and free of action. The endosteum is most active. Both periosteum and endosteum produce osteoblasts and osteoclasts."

Dr. John B. Murphy (18) believes that the transplant which would be analogous to the core in Greenfield implantations "Always is absorbed, but acts as a scaffolding for the reproduction of new bone."



Cotton and Lodor. Drs. Cotton and Lodor (19): "Uniform survival and healing of graft and microscopically a rapid covering of the graft by new endosteal bone laid down by the activity of the endosteoblasts in all por-

tions of the graft centre and periphery."

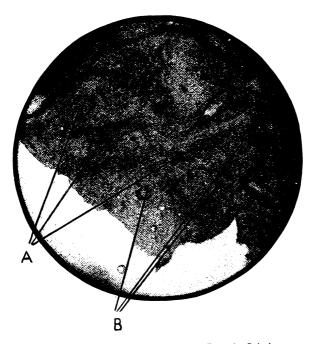
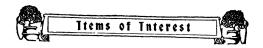


Fig. 5. Transverse Section of New Bone in Spiral.

(a) A metaplasia of fibrous tissue into bone. (b) Particals of powdered bone with new bone forming around them.

Dr. McWilliams (20) believes that "Living bone cells have life inherent in themselves, and that the theory that contact with living bone is necessary for the subsequent life of the graft must be given up." He believes that "All that is necessary to perpetuate the life and proliferation of bone cells is proper and sufficient nourishment," and cites as proof of this statement that "Small bone transplants embedded in muscular tissue lived, while larger ones were absorbed."

Bancroft. Dr. F. W. Bancroft (21) believes in bone repair. There is a metaplasia from the connective tissue cells to osteogenetic cells.



The Author's Experiments.

In his own experiments your essayist transplanted human, pig and sheep roots into the jawbones of dogs—transplanted them into the sockets of freshly extracted teeth and into holes drilled in the jawbone where there had been no teeth. Trephined and implanted iridio-platinum cribs after the Greenfield method and spiral shaped iridio-platinum

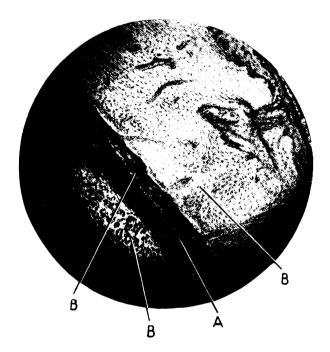
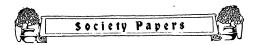


Fig. 6. Longitudinal Section of New Bone—in Spiral.(a) Fibrous tissue. (b) New bone.

wire implanted into holes made with a bone drill. Studied the growth of new bone under various conditions and the effect of trauma upon bone due to instrumentation in the various operations. He has transplanted sheep and pig's tooth roots in the human jaw, the pig's roots giving every evidence of permanency.

Fox terrier about a year old, April 19, 1913, transplanted freshly removed sheep's tooth in mandible-right side. Tooth was lost on fifth day.



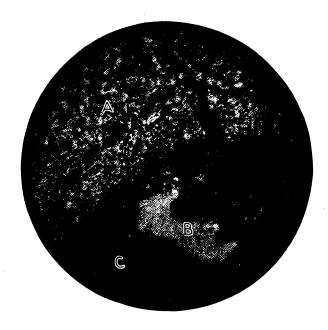


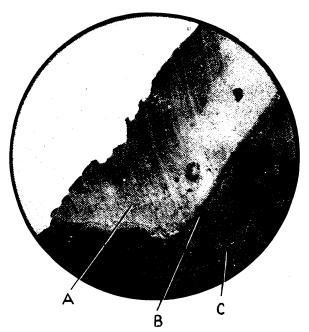
Fig. 7. Transverse Section of Bone Around Greenfield Crib.

(a) Healthy bone. (b)
Space from which wire
of crib was removed. (c)
Degenerated bone cells
around crib.

Fig. 8. Transverse Section of Pig's Root Nursed upon the Blood of the Dog.

(a) Dentine. (b) Peridental membrane. (c)

Bone.



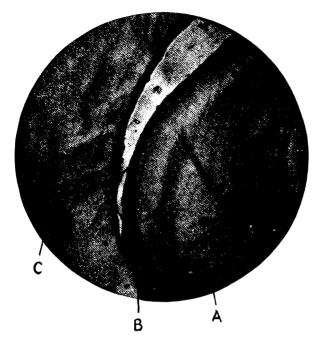
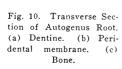
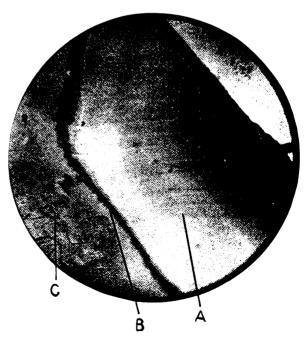


Fig. 9. Transverse Section of Homogenus Root.
(a) Dentine. (b) Peridental membrane. (c)
Bone.







Transplanted a small tooth root from a healthy, freshly extracted human third molar in left side of dog's mandible. Root lost between twelfth and fourteenth day. Implanted after Greenfield's method an iridio-platinum crib in natural space distal to upper right cuspid tooth. The crib was lost between twenty-eighth and thirtieth day—probably due to rarifying osteitis. Implanted iridio-platinum spiral in natural space distal to upper left cuspid tooth. Hole was made with bone drill—no lubricant used. Spiral incapsulated in sequestrum was

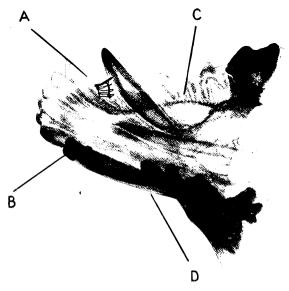


Fig. 11. Radiograph of Upper Jaw—Experiment 4.

(a) Greenfield crib. (b) Platinum iridium spiral. (c) Sheep root nursed upon the blood of the dog. (d) Sheep root not nursed upon the blood of the dog.

exfoliated on fourteenth day. Lower left bicuspid was transplanted into the socket of upper right bicuspid—upper right bicuspid vice versa. Same operation was repeated on lower right and upper left bicuspid tooth. Lower left transplant was lost on third day. The other three teeth were retained and held firmly in the socket on the forty-eighth day, when animal escaped, thus preventing postmortem observation.

The foreign grafts, that is, the sheep and human roots, were lost on the fifth and twelfth days, respectively; whereas with the autogenous grafts (the dog's teeth), of the four, three were retained.

Your essayist assumed that in the three retained teeth the peridental membrane remained vital, inviting tissue adhesion, and lived. In the



case of the other teeth the peridental membrane died; there being no appreciable inflammation, the tooth being retained by mechanical force only (as a foreign body), was exfoliated owing to a rarifying osteitis in the surrounding bone tissue.

That the autogenous transplants retain their vitality, while the heterogenous died, was in direct accordance with the experimental work of tissue transplantation by Carrell and other investigators. That the

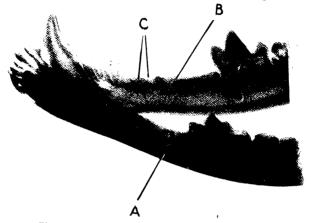


Fig. 12. Radiograph of Lower Jaw—Experiment 4.

(a) Drill hole where no powdered bone and vaseline was used. (b) Where drill hole was made using vaseline and powdered bone (note core of new bone). (c) Sockets from which teeth had been extracted.

autogenous lived while the alien tissue died proved that death was not due to the lack of available nourishment or blood supply, but rather to the inability of the tissue to assimilate the foreign nutrition. Acting upon this assumption, your essayist determined by graduating steps to culture or nurse the tissue to be transplanted upon the blood of the individual into whom the graft (tooth root) was to be introduced. To accomplish this your essayist made a bouillon of blood from the animal from which the graft (tooth root) was obtained and a bouillon of the blood of the individual into which the graft (tooth root) was to be implanted.

The root, after being carefully dissected under asepsis, *i. e.*, the mandible of a freshly slaughtered sheep or pig, is painted with iodine and wrapped in sterile gauze, exposing only the incisor region. The crowns of the teeth are removed from the roots by drilling through below the gingival border, the freshly exposed area is painted with iodine and the mucosa dissected away from the bone—the exposed bone is painted with iodine—a fresh sterile set of instruments is then employed—the bone carefully chiseled away until the roots are well exposed. The

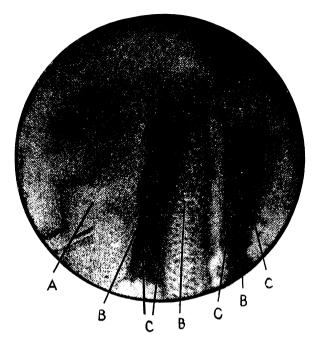
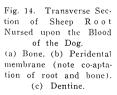
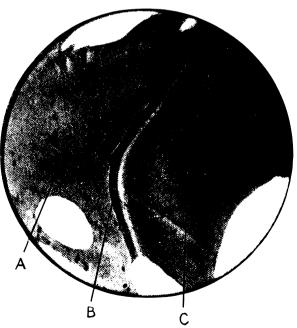


Fig. 13. Longitudinal Section of Bone in Spiral.

(a) Bone. (b) New bone forming within the fibrous tissue. (c) Fibrous tissue.





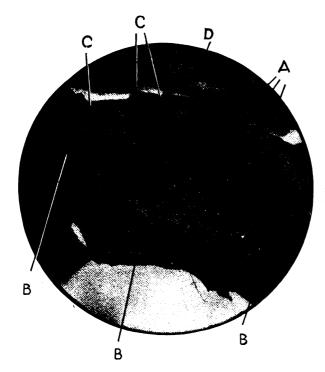
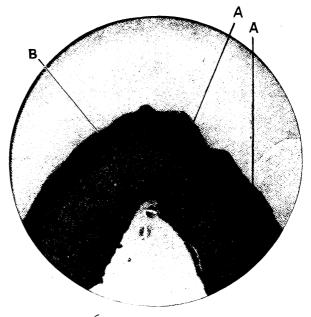


Fig. 15. Transverse Section of Sheep Root not Nursed upon the Blood of the Dog.

(a) Fibrous tissue growing into a bay of absorbed dentine. This section may explain how a root can become anchylosed into a socket. (b) Dentine. (c) Peridental membrane.

Fig. 16. Transverse Section of Sheep Root which has been nursed upon the blood of the individual (upon the mesial side only) and then implanted. Root was extracted on 90th day-section shows; (a) Peridental membrane on mesial side was vital. (b) Peridental membrane on distal side (which was not nursed upon blood of individual shows degeneration and numerous osteoclasts).





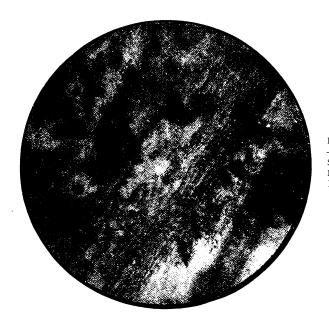
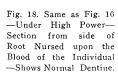
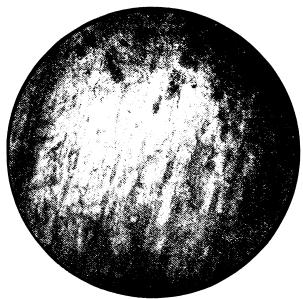


Fig. 17. Same as Fig. 16

—Under High Power—
Section from side of Root not Nursed Shows
Decalcification of Dentine.





roots are removed with the peridental membrane intact. No instrument should be allowed to come in contact with more than one root, as any root, being unsterile, would then contaminate the others. Even under these extreme precautions your essayist has only been able to obtain about twenty-five per cent. of sterile roots. These are then placed in separate test tubes, each containing a normal saline solution with ten per cent. of the autogenous bouillon. At the end of six hours a bouillon





Fig. 19. Sheep and Pig Root Implantation in Human Jaw. Radiograph Taken One Month After Implantation. Right Central is Pig Root, Left Central Sheep Root. Fig. 20. Same as Fig. 19 Taken Four Months Later. Patient Presented.

to the amount of two per cent. of the individual into which the root was to be transplanted was added. This was repeated every six hours until twenty per cent. by bulk was attained. A culture was then made and, if negative, the root was transplanted and invariably retained.

The formation of a sequestrum around the spiral is in direct accordance with the findings of surgeons when drills have been employed in bone work. This phenomenon is generally attributed to heat produced by friction when drilling. To overcome this, cold water is employed by the surgeon while operating.

If success was to be obtained in transplanting roots in freshly drilled sockets, your essayist recognized that the drilling must be accomplished without injury to the bone tissue and decided to continue research to this end.

A piece of dog bone was dried, broken up into powder and incorporated in vaseline, to a consistency of a thick paste. In later implant



experiments this was used upon the drill, which was also chilled with an ethyl chloride spray while drilling, with the result that we never had a sequestrum form when this technique was followed. The vaseline reduced the friction while drilling, and it was found that the powdered bone encouraged the growth of bone by becoming a focus for the rapid development of new bone.

Your essayist also recommends the use of powdered bone in vaseline in the treatment of bone fractures, introducing it hypodermically into and between the fractured ends; also wherever new bone is desired, such as the restoration of alveoli restored by pyorrhea. His experiment has shown that the powdered bone encourages calcareous deposits and a metaplasia of adjacent tissue cells into bone.

Bull terrier about a year and a half old, September 18, 1913. Transplanted a small root of Experiment 2. healthy, freshly extracted human third molar tooth in space (Fig. 1, A) between bicuspid teeth on lower right side (no lubricant used—drill chilled). Implanted platinum iridium crib (Fig. 2, B) in space distal to upper right cuspid (no lubricant used). Transplanted root from freshly slaughtered sheep into space distal to upper left canine. This root was transplanted immediately from the sheep's jaw to the dog's. Vaseline and powdered bone employed. A root from the same sheep's jaw, which had been nursed upon the blood of the dog, according to your essayist's method just described, was transplanted into space distal to upper right cuspid of the dog's jaw on September 22, 1913. Vaseline and powdered bone employed. Animal sacrificed October 16, 1913 (twenty-eight days). The transplant of the human root in lower right side was almost completely absorbed (Fig. 1, A). Here no vaseline and powdered bone were used—the root was incapsulated in a sequestrum of bone about to be exfoliated. The platinum crib implanted in upper right side was about to be exfoliated (Fig. 2, B). It was also partly incapsulated in sequestrum of bone. The sheep root, which was transplanted directly from sheep's jaw to dog's, was lost on the twelfth day; whereas the root that had been nursed upon the blood of the dog was retained (Fig. 2, A). Microscopic sections (Fig. 3) show a physiological coaptation. There was no apparent inflammation of the adjacent tissue. iridio-platinum crib, as stated, was about to be exfoliated-partly incapsulated in sequestrum.

Mongrel collie about two years old, April 19, Experiment 3. Implanted iridio-platinum crib after Greenfield's method in space anterior to upper left canine tooth. Implanted in space anterior to upper right canine—iridio-

platinum spiral. Vaseline and powdered bone used on drill—also ethyl chloride spray. Transplanted on right side distal to canine tooth, freshly removed pig's tooth root. Transplanted on left side, tooth root of a pig nursed upon the dog's blood according to the technique described. Drilled hole in lower jaw bone, distal to right cuspid tooth, using no vaseline nor powdered bone on drill. Drilled hole in relative space on left side, using vaseline and powdered bone on drill—also filling hole with vaseline and powdered bone—sutured the mucosa over each drill hole, using horse hair suture. On May 3, 1914, transplanted tooth from another dog into socket of freshly extracted upper right first bicuspid. This upper right bicuspid was transplanted into socket of freshly extracted upper left first bicuspid This was done to observe whether autogenous tooth roots were retained better than homogenous roots. However, in this case, both teeth were retained and apparently equally firm. Animal sacrificed May 31, 1914 (forty-two days).

There was marked degeneration of bone around the Greenfield crib (Fig. 4, A and Fig. 7). The core had almost entirely resorbed. The platinum iridium spiral implant (Fig. 4, B) was retained in a healthy area of tissue, the drill hole being almost completely filled in with new bone (Figs. 5 and 6). The pig's root, which was transplanted directly from the pig to dog, was lost, while the pig's root (Fig. 8) nursed upon the dog's blood was retained.

There was little to choose between the autogenous (Fig. 4, C) and the homogenous (Fig. 4, D) transplants; both were retained (Figs. 9 and 10). In the drill holes in the lower jaw, on the left side, where vaseline and powdered bone were used, there was a complete filling in of healthy bone. On the right side, where no vaseline nor powdered bone were used, the hole was almost filled.

White fox terrier about year and half old, May 3, 1914. Implanted Greenfield iridio-platiunm crib in space distal to upper right cuspid, using vaseline and powdered bone. Implanted iridio-platinum spiral in space distal to upper left cuspid tooth; used powder and bone. Transplanted distal to upper right canine, a freshly extracted dog's tooth, from which the peridental membrane had been removed. Transplanted in socket of freshly extracted upper right second bicuspid, a sheep's tooth root, nursed upon the blood of the dog. Transplanted in socket of freshly extracted upper left first bicuspid, root of sheep freshly removed from animal and not treated upon the blood of the dog.

In lower jaw, extracted on the left side two teeth to see if socket would heal more readily than where hole was drilled just distal to these sockets and filled with powdered bone, using vaseline and powdered bone



on drill-sutured mucosa over drill holes with horse hair sutures. Right side, drilled hole relative to drill hole on left side, using no vaseline or powdered bone. Sutured mucosa over hole with horse hair sutures. Animal sacrificed May 31, 1914 (twenty-eight days). There was less resorption of bone around the Greenfield crib (Fig. 11, A) than in the other Greenfield experimental implants, probably due to the use of the vaseline and powdered bone. There was no sequestrum; however, the crib was not held firmly in the jaw bone. The spiral implant (Fig. 11, B), although not firmly attached, was being retained in a moderately healthy tissue area. Transplant of dog root, denuded of peridental membrane, was lost on twelfth day. Sheep's root (Fig. 11, C and Fig. 14) that was nursed upon the blood of the dog was retained, and in coaptation with healthy surrounding bone tissue, while sheep root not nurtured upon the blood of the dog (Fig. 11, D and Fig. 15), although retained, was not in coaptation with surrounding bone tissue.

In the lower jaw, on the left side where teeth were extracted (Fig. 12, C), sockets had partly filled, while drill hole which was filled with powdered bone (Fig. 12, B) had entirely filled with healthy new bone.

On the right side (Fig. 12, A), where no vaseline or powdered bone were used, drill hole was an empty space, surrounded by a sequestrum of degenerated bone.

Your essayist found that, whereas metal was retained in jaw bone, the bone tissue did not take kindly to it; that roots denuded of peridental membrane were exfoliated; that autogenous and homogenous tooth roots with peridental membrane upon them were retained; that the alien tooth roots not nursed upon the blood of the individual into whom they are transplanted are lost (except in one instance, where the sheep tooth root was retained, but only mechanically); that alien grafts (tooth roots), when nursed upon the blood of the individual into whom they are transplanted, are retained; that powdered bone incorporated in vaseline, when introduced into tissue, invites calcareous deposits and the formation of new bone; and, best of all, that the possibility of transplanting alien tissue is no longer in doubt.

I am indebted to Dr. W. H. Stewart for the X-rays.

Bibliography.

- I. Younger—Colyer text book.
- 2. Amoedo—Colyer text book.
- 3. Allen—Dental Cosmos, May, 1910.
- 4. Rothman & Bilsko—Dental Cosmos, July, 1910.
- 5. Ascari-Revisa Stomatologiea, 1911.
- 6. Sabba—Deutsch Monatsschrift Zahnherlkunde, Berlin, 1911.



 Schroder—Corespondenz-blott fuer Zahnaerzts, Berlin, October, 1011.

8. Lang—American Journal of Orth. & Surg., Vol. VIII, 1910.

9. Thomas—Surg. Gyn. & Obs., May, 1914.

10. Ochen-Surg. Gyn. & Obs., May, 1914.

11. Brown & Brown—Surg. Gyn. & Obs., December, 1913.

12. McWilliams—Surg. Gyn. & Obs., February, 1914.

13. McEwen—Book—"TheGrowth of Bone," 1912.

14. Barth—Chir. Kong., 1893 ii-234, 1894-ii-201.

- 15. Axhausen—Deutsche Ztschr. & Chir., 1907-xci-197.
- 16. Beattie—Text Book of Pathology, Uni. of Sheffield, 1909.

17. Weider—Bull. Univ. Penn., 1909.

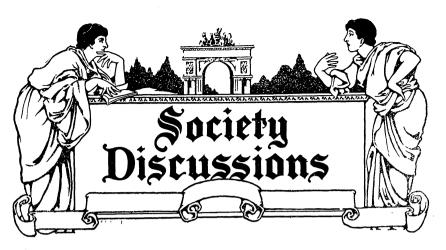
18. Murphy—J. Am. M. Asso., April 6, 1912.

19. Cotton & Lodor—Surg. Gyn. & Obs., 1913, xvii, 137.

20. McWilliams—J. Am. M. Asso., 1914; İxii, 351, Ann. of Surg., September, 1912; Surg. Gyn. & Obs., February, 1914.

21. Bancroft-Am. J. of the Med. Sci., June, 1914.





Forty-Fourth Annual Meeting of the New Jersey State Dental Society.

(Report of Wednesday Evening Meeting Continued)

President Gelston.

Dr. Fowler, chairman of the Essay Committee, will introduce the essayist of this evening.

Chairman Fowler.

We have been successful in bringing before the society to-night an essayist and a subject that will be of importance as one of the live topics to come up

before the convention. We have selected for this evening as that essayist, Dr. H. J. Kauffer, D.D.S., of New York City. Dr. Kauffer has been carrying on experimental work in perhaps a different line from the ordinary Root Implantation experiments and he will explain these experiments fully.

He has a patient who is carrying some experimental work in his mouth and this gentleman is present to-night. Dr. Kauffer wishes to present him at this time.

(Dr. Kauffer presented a patient with an implanted root and invited everybody in the room to examine the work.)

I regret that I should interrupt this meeting to present this patient at this time, but he has been kind enough to come from New York to be present here to-night and must get the 9:30 train back, which accounts for the interruption. This patient has had implanted or transplanted, according to my technique, a tooth root which I will describe in my paper. It is an operation by which a pig's tooth root is supporting the porcelain pivot crown.

53 Jan,

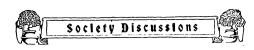
The two upper centrals were lost in an accident about fourteen years ago and he had no teeth in the gap during that time. He became interested in my work, and I am indebted to the patient also for taking care of my dog, at the institution where I have done my research work, which he saw and which was the incentive to him to submit to this operation. He thought so well of it that he wanted some roots in his own mouth. If any of you gentlemen would like to see this case I would ask you now to step forward and examine the patient's mouth. (The patient was then examined by those in the room.)

Gentlemen, you have seen, in this case, one of those wonderfully successful operations in which an alien tooth root was implanted in the mouth of a human being. It is one of those remarkable operations of which there are very, very few successful cases. Dr. Kauffer will now proceed with his lecture. (Dr. Kauffer's paper appears in this issue.)

Discussion of Dr. Kauffer's Paper.

Mr. President and gentlemen, the question that arises primarily in a discussion on this valuable contribution to our profession is: Has the essayist a right to assume that the peridental membrane remains vital in his experiment, and if so on what is this assumption based? We have records of implants and replants that have been retained for ten years and more without so much attention to detail in the preparation thereof as the essayist has pursued. The use of powdered bone and vaseline as a lubricant and for the purpose of stimulating osteogenesis is, I believe, a valuable procedure. Schroeder, of Berlin, advocates the use of tri-basic phosphate made into a mass for a similar purpose.

The weakness of the essayist's paper lies, essentially, in the fact that such a short time has elapsed for the formation of any reliable opinion or positive statement as to the results achieved. The question and the thought that comes to us, however, as we listen to a presentation such as we have heard this evening is that we are standing upon the threshold of a new era. The dental profession is no longer one of mechanical ingenuity or mechanical practice only. Nowadays there are marks of paths before untried and unbeaten—of delving into the hidden mysteries of science; the relationship of dental application to systemic disease; the chemical nature of the salivary secretions; the anatomical instructions in prosthesis and now the surgical replacement of lost dental organs are opening new fields. It is due, largely, to this awakening that here in New Jersey the dental profession has been elevated for the first time, and may we trust for all time, to that high plane so long occupied and monop-

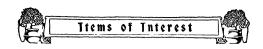


olized by our medical brethren. The Academy of Medicine of Northern New Jersey, an organization of the representatives of the highest type of men, with a membership embracing some of the most prominent men in the medical profession in the East, at a recent meeting altered their by-laws by unanimous vote to admit dentists to the Academy with all the rights of fellow membership. May we not be unmindful of that action. May we rather by a continuance in the path of scientific research and by our best efforts at all times toward the alleviation of human suffering and pain and the betterment of the public health teach all other such organizations throughout the length and breadth of this great country that not alone shall we be worthy of their confidence, but that they, as well as we, must profit by these alliances.

As regards Dr. Kauffer's work we have been Dr. J. W. Bassler, connected with it very closely, and your society m.D., new York City. should be complimented on having his first paper on this subject. From what I have seen of it I congratulate Dr. Kauffer very highly upon his success so far and for what he has attained.

I have listened to Dr. Kauffer's paper with a great deal of interest. He has brought before you Dr. A. E. Smith. a subject that is of vital importance to the dental profession. The members of the profession have been working for years on this problem and for this once they have arrived at some method whereby roots can be inserted, roots of pigs and other animals, to take the place of the undesirable plates which have been in use heretofore. We have had considerable experience during the past two and a half years with implanting of platinum roots. At the present time I am carrying on research work along this line and in the near future I hope to have something to present to the dental profession which, I think, will be of great interest. We have implanted a large number of Greenfield roots and I have seen a number of cases that were not successful. However, I have had a number of cases, up to the present time, that are a success. I have one in my own mouth that was implanted one year ago before the State Society of Connecticut.

This root has never given me any pain whatsoever. I was very much impressed with Greenfield's system when it was first presented to the members of the dental profession, but after using it extensively I was not so enthusiastic over it. In my own case, for instance, we have been very careful and took radiographs every two months to compare the changes that have taken place. As you know, in the Greenfield implanting method we have a center core. In my own case I find, after three months, that there was no absorption of the center core. At the end of

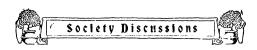


three months the tip of that core began to absorb. Four months ago the radiograph showed that the regeneration of the center core was taking place. Last week, at the National Society at Rochester, it showed the center core as regenerated a great deal, which we determined by comparing it with the radiographs taken previously. I have abandoned the Greenfield system altogether and I am glad to say that I have devised a system with which up to the present time I have met with great success. As Dr. Kussy said in his discussion, Dr. Kauffer cannot be positive about the practicability of his method in such a short time.

In regard to the system which I have devised, I do not know that I want to make a statement; I could not make it and say that it is a complete success. We are trying to improve the methods and hope to stumble on some plan whereby we can do this work with complete satisfaction and with which we can claim that our work will be a success. I have implanted something over forty, and two of them, to my knowledge, were a failure. I started to do this work last fall and I appreciate that we cannot draw our conclusions or base our success or claim absolute practicability in such a short time. In ten years from now it will be a different proposition.

With your permission, in closing I will cite one or two cases of particular interest. Last month I implanted a right upper cuspid for a patient sixty years of age, for Dr. Bell, of Ashtabula, O. There were three roots. In order that the doctor could insert a fourteen-tooth bridge the cuspid was inserted. Dr. Bell presented this operation to the National Dental Association in Rochester. To-morrow, in my clinic before your society, I will present to you numerous radiographs showing how these roots have been inserted. I have slides of radiographs showing roots that Dr. Greenfield implanted eight years ago and Dr. Greenfield tells me that these roots are still in the patient's month. If any of you gentlemen would like to see the root that I have had inserted in my own jaw I will be glad to exhibit it to you. It has been in for one year and it has never hurt me a particle.

Mr. President, I might report a case of replantaDr. Charles 7. Jones. tion. A boy ten years of age had an accident and the tooth was lost for about six or eight hours, after which it was finally brought to my office and I sterilized the tooth and removed the pulp and filled the root canal and then sterilized again and replaced it back into the socket. I applied a small splint, cemented that in position and allowed it to remain for two months. That was inserted about the first week in January. At this time that is in position and thoroughly firm. Next year I hope to present that case to the convention with radiographs.



Dr. Kussey tells us that this work is unproved. In ten years I would like to show you some results. Dr. B. 7. Kauffer. which I know will develop, and assure you positively that it is a success; but a great deal of time would thus be lost if we waited ten years before submitting this to the profession. agitated his method of root implantation and I wished to investigate and be sure as to whether it was a success. As I have shown you with my method, I worked along scientific lines. Dr. Kussey, I assumed that the peridental membrane remained vital before I made my sections. believe that if the membrane remains vital we will have the tooth root implanted, successfully retained. If we can by nursing this tissue on the blood of the individual retain the vitality of that membrane we are positively going to have the retention of that root if there is a coaptation of tissue. There are reports of cases of transplantation of teeth that have They have been retained from six to ten years, and if we get that result "of tentative preservation," as Dr. Schroeder says, it is well worth while

Dr. Hassler tells us that with the Lane plates he believes that we have only fifty per cent. complete success. I do not question that for a moment, because I do not believe that metal will stand stress under such conditions, and that these plates do need to be removed. I simply stated that it is said that Lane has only four per cent. of failures, and Dr. Thomas, as I said in my paper, assumed that he does have more than four per cent. As for metaplasia of connective tissue into bone, Dr. Bancroft, in a paper published in the *Journal of Medical Science* last month, showed a case of this kind.

Dr. Smith tells us that he has abandoned the Greenfield system. I know that he has done a great deal of work with the Greenfield crib, and "that the core has been retained for a certain period of time," and I do not question that for a moment. However, in the Greenfield technique there is a large quantity of paraffine used that is not absorbed and must remain (and Dr. Greenfield does not use any lubricant on the trephine), he is bound to have a resorption of the core, even if there is no stress.

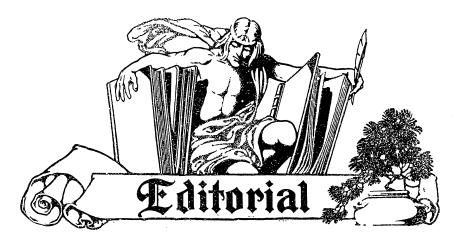
Dr. Smith has told us about a crib in his own mouth. I would like to have Dr. Smith tell us whether there is a crown on this crib or not.

No, there is no crown on the root, Dr. Kauffer. **Dr. Smith.**That is different. With a crown it cannot be retained. Will it withstand the stress and support the action of mastication?

Moved that a vote of thanks be tendered to Dr.

Pr. Fowler. Kauffer for his very interesting paper. Motion seconded and carried. Adjourned to meet Thursday morning at 10 o'clock.

Jan.



The Forsyth Dental Infirmary for Children and the Work Which it May Accomplish.

The opening of the Forsyth Dental Infirmary for children marks an epoch in dental history, from which we firmly believe will be dated a revolution as to the appreciation of the importance of dental caries and mouth hygiene in relation to general health, as well as in the responsibility of municipalities toward children of school age.

In a splendid and illuminating address made at the dedication, Mr. Edward McSweeny, Trustee of Boston Consumptives' Hospital and Chairman of the Port Directors, Boston, made certain statements which seemingly open a most important discussion, which for the benefit of the children of this country should be conducted dispassionately.

Mr. McSweeny tells us that in the school year 1912-1913 there were 122,459 defects among the school children of Boston, and that 80 per cent. of these centered in the mouth and teeth. He then says:

"With the establishment of this infirmary, so wisely conceived and so patriotically carried out, the community can feel assured that every child in the Boston public schools will have all possible defects remedied before leaving school; and consistent with incurable physical limitations, these children will have a straight road from their education into their chosen paths of life."

This in effect means that all the defective teeth of the children in the Boston public schools can be cared for in the Forsyth Dental Infirmary. This is a pleasant prophesy on the part of Mr. McSweeny, but unfortunately, if, as we understand to be the case, the Forsyth Infirmary



is to be conducted as a curative clinic, this prophetic vision can never become a realization.

Fortunately, however, the building itself is so constructed and equipped that, in time, this single institution might well care for all the teeth of Boston's school children as rapidly as they might need attention, provided that the proper course be pursued. More fortunately still, it is the writer's firm belief that the present directors of the Forsyth Dental Infirmary are men of such broadness of mind and of such capability that just so soon as it may be shown that more can be accomplished with a plan other than the one first to be tried, they will put into force the alternative method of managing the institution in order that the great gift of the Forsyths may achieve the highest good for the largest number. Putting aside, therefore, all personalities, and admitting that no plan has yet been fully shown to be the best, let us fairly analyze the task which is to be undertaken.

Che Extent of Caries in Schools.

Dr. William J. Gallivan, Commissioner of Health and Chief of the Bureau of Child Hygiene for Boston, in his address states that school inspection shows that 46 per cent. of the school children have defective teeth. Dr. Gallivan is a physician,

and in the same address tells us that medical inspection of school children was first inaugurated in Boston, and that the defects in teeth were found to be so numerous that "school physicians were required to record defective teeth." It would seem, therefore, that this estimate of 46 per cent. defectives is based upon tooth examinations made by medical examiners. If this examination and the resultant statistics were correct, it would mean that 54 per cent. of the Boston school children have sound teeth, which no dentist with the least experience in such matters would believe.

Dr. Ward Crampton, Director of Child Hygiene for the City of New York, has expressed the opinion that 80 per cent. of school children in New York City have four or more decayed teeth. Similar statistics have been compiled in other cities. It cannot be very different in Boston.

If Mr. McSweeny bases his statistics on Dr. Gallivan's percentages, it is manifest that he has told but half the truth, and we may be sure that in actual practice the task will loom much larger than his figures would



lead us to expect. With this fact, which is a fact, clearly in mind, let us accept his estimates and see just what it is that he thinks the Forsyth Dental Infirmary can accomplish.

He tells us that (in round numbers) there are 122,000 defective children in Boston, 80 per cent. being tooth defects. This means that 97,600 Boston school children have defective teeth. Accepting Dr. Crampton's estimate of four each, that means that there are at present 390,400 carious teeth in the mouths of these school children.

How many of these shall we allot to the Forsyth Dental Infirmary?

Proportion of Children who Would Accept Free Creatment.

The writer once asked Dr. Ward Crampton this question: "If the municipality should pass a law making it compulsory that children's teeth should be cleansed once a month, and supplied trained nurses to do the work in the schools, what proportion of the

parents would have the work done in private offices?" His reply was illuminating. He said in effect:

"Of course, it is hard to tell accurately. But my experience is that the parents will acquiesce in any regimen the school laws require. I think if we had a dental infirmary, with nurses cleansing teeth, not over ten per cent. of the children would go to private dentists for their cleansing, and if we likewise had infirmary dentists filling teeth free, not over twenty per cent. would have their children's teeth filled outside of the school infirmary."

The above, of course, is purely speculative, but it comes from a man of vast experience. Moreover, it should not be forgotten that the children of the very rich go to private schools. It is fair, then, to presume that eighty per cent. of the 390,400 carious teeth in Boston may be allotted to the Forsyth Dental Infirmary in this study of the problem. This means 312,320 to be cared for in the first year.

Che Resources of Che Forsyth Dental Infirmary. To meet this problem and fulfill Mr. McSweeny's promise to Boston's school children, what resources will the Infirmary have? There are to be at the outset 15 operators working 7 hours per day (presuming that they have one hour for luncheon), a

total of 105 hours; 60 working 4 hours each, a total of 240; and 15 working two hours each, a total of 30 hours, or a grand total of 375 hours.



Add to this 25 hours daily by the visiting staff and we have 400 hours of work accomplished daily by the operators of this institution.

Deducting 52 Sabbath days and eight yearly holidays, we have 305 working days for the infirmary. As there are 312,320 teeth to be filled annually, the infirmary must fill (in round numbers) 1,000 teeth in each day, working 400 hours per day. Can the infirmary do this?

When the full complement of 110 chairs are in place, and with an operator at each for full time, we would even then have but 700 hours per day in which to care for 1,000 carious teeth.

Che Writer's Personal Experience.

It may seem to some that 1,000 children's teeth may be filled in 700 hours. Let us therefore recount a personal experience. The writer during 1912-1913 was one of a committee of 80 men of the Second District Dental Society, who took care of school

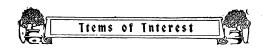
children in their private offices. He received and treated three children, giving Saturday afternoons from 2 P. M. to 5 P. M. to the work for six months.

Problem: If it required six months, working half a day per week for one dentist to care for three children, how many dentists would be needed, working seven hours, to fill 1,000 teeth in one day?

For these three children exactly twelve teeth were filled. Each child also had prophylactic treatment one hour each month. Thus there were eighteen hours devoted to prophylaxis, and the actual time spent on treatment and filling amounted to thirty hours for the twelve teeth. Four of these teeth presented pulp exposures and required pulp removal, with radiographic checking up to prove the work correctly done.

It is not here claimed that this estimate of approximately two and one-half hours per tooth would maintain throughout an entire year's experience in a public dental infirmary, since all these teeth were filled with gold inlays; nevertheless, it seems fair to estimate at least one hour per cavity.

At this rate it is seen at once that the task set for the Forsyth Dental Infirmary by Mr. McSweeny is a hopeless one, and moreover we have not reckoned a single hour for prophylaxis, but have devoted the entire time of all the operators to curative work. Is it not manifest then that this institution, wonderful as it is, cannot wipe out the ravages of caries and



at the same time insure mouth hygiene for the school children of Boston if conducted as a curative clinic?

Che Problem of Pulv Disease.

We may as well at once discuss one of the most important problems in relation to treatment of children's teeth. What is to be done in a dental infirmary with teeth in which the pulps are exposed,

or dead and diseased? The men who are teaching and preaching, for preaching it amounts to, the correct method of doing root canal work, are demonstrating that it requires the highest skill, coupled with patience, perseverance and free use of radiography. Behind these are marching numerous dental and medical investigators who are proclaiming, aye, and proving, that faulty root canal work produces root-end infection, which in turn causes systemic infection, followed by organic disease and even death. What then is to be done with these teeth when the child is brought to the infirmary? Shall they be properly filled, and the correctness of the work proven with a radiograph, in spite of the skill and time required? Or shall these root canals be indifferently filled, leaving the child to possible future systemic disturbance? The answer is not readily found; yet if the latter course be pursued, hopeless must be the effort to combat disease through dental attention, and we might as well haul down our banners and erase the words "Prophylaxis" and "Mouth Hygiene."

Prophylaxis and the Dental Nurse.

At the outset the writer declared that there is a plan whereby the Forsyth Dental Infirmary can accomplish all that the founders have hoped and all that Mr. McSweeny has prophesied. And the hint of the solution is contained in the words "Mouth

Hygiene" and "Prophylaxis." Told quickly, it comes to this: Let every school in Boston be supplied with properly trained dental nurses, whose duty it shall be to cleanse the teeth of the children once a month, and to train them in mouth hygiene, at the same time noting and charting incipient caries. The Forsyth Dental Infirmary could then readily fill all the cases of caries as fast as discovered. This, of course, cannot be accomplished in a single year, but the plan can be worked out so as to practically eradicate caries and more especially foul mouths, exposed pulps and abscessed teeth within ten years. Would this be worth while?



The plan in detail is as follows: Abandon at once the hopeless undertaking of filling teeth for all the school children of Boston. Last year Boston had no such infirmary; the children who already have decayed teeth will therefore be no worse off now than they were then, if the infirmary should not undertake the filling of their teeth.

Add to the present dental staff of operators fifty or sixty women, who shall constitute the first class of trained dental nurses.

Limit the work of these women during this first year of training to operations upon the infant classes. These youngsters, having few if any permanent teeth, can suffer little harm from these women in training, less harm, surely, than the patients in hospitals attended by undergraduate nurses. Let these dental nurses, after graduation, be given chairs in public school buildings, where they could continue the prophylactic work on the same children, now one grade higher in their school work, and let a new class of nurses be received into the Infirmary Training School. Then year by year more and more nurses could be trained by the Forsyth Infirmary and sent into the school infirmaries, and by the time when the first children thus treated are ready to enter high school, they will do so with practically clean mouths; with teeth, when filled at all, filled with small fillings; with all or nearly all teeth having sound, living and healthy pulps; with no abscessed teeth present; with trained prophylactic dental experts, caring for the mouth hygiene of all children to the top of the grammar grade; with all children entering high school thoroughly appreciative of the value of sound teeth and skilled in the care of them. Then would the Forsyth Dental Infirmary easily be able to care for the cavities in children's teeth as fast as their own graduate dental nurses would find and report them. Then would the problem have been solved.

Correction, with Apologies to Dr. Buckley.

It is with extreme regret that we must call attention to and apologize for a most unfortunate blunder in the last number of ITEMS OF INTEREST. In the report of the discussion of Dr. Buckley's paper, entitled "Desensitizing Paste. A New, Safe and Reliable Remedy for Hypersensitive Dentin," his closing remarks were made to include the following paragraph (page 939):

63 Jan.



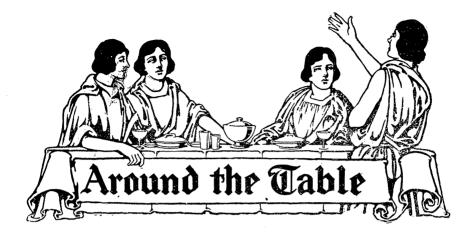
"Do you realize what it means? It means we can do better work and do it with more ease to our patients and ourselves. Our patients will no longer come to us with that intuitive dread of the dental chair that has always existed. We can conserve the vitality of our patients and of ourselves, and I believe that five years at least will be added to the active lifetime of every practicing dentist. I think I can safely prophesy this, and I believe the future will bear me out. It means also the passing of this present wave of enthusiasm which is sweeping over the country with regard to analgesia. We no longer need to give to our patients an anesthetic which will produce either partial or complete anesthesia, but can follow a saner line of procedure and one which is far safer in all cases. In conclusion, when the history of the dental profession shall have been written, I firmly believe that the name of Buckley will stand out conspicuously and prominently, and will properly be placed alongside of and with such names as Sir John Lister, Koch and Pasteur, and our own beloved Horace Wells, as benefactors of the human race."

All those who are personally acquainted with Dr. Buckley will recognize at once that such language never could have emanated from himself, as his arduous and valuable labors in behalf of the dental profession have always been coupled with the utmost modesty of manner, and no one could believe for an instant that he would prophesy that his name in future would be linked with those of Lister, Koch, Pasteur and Horace Wells, however true this prophesy may be. As a matter of fact, the paragraph should have been published at the end of the discussion of Dr. Hart J. Goslee.

Also we must note that on page 938 the formula for trioxmethylin is given as $(CH_2)_3$, whereas it should read $(CH_2)O_3$.

We again sincerely apologize to Dr. Buckley for the unfortunate misplacement of this matter.





I WAS DINING ALONE one night recently at the Café des Enfants, as we call it in the higher circles of society; but as some of you may not be in our set, let me explain that the common people know the place as Child's Restaurant. I was diming there because I was dining alone. When I have company, of course, I am compelled to eat at the Biltmore, the Ritz Carleton or the Café des Beaux Arts; places where the waiter does not ask: "Will you have wine, Doctor?" but pleasantly accosts you with: "Doctor, which wine will you have." So when I am eating alone, I find it economical to patronize one of the Child's (not Children's) Restaurants, where the worst that the waiter dares to says is: "Coffee, with or without milk?" Milk, mind you, not cream!

TO GET BACK to my story, I was dining alone at Child's, or rather I was expecting to dine alone, but the Fates willed it otherwise. Did you • ever approach a curb on a dark and rainy night? You naturally expect a lot of water in the drain right by the curb; so, to avoid wetting your feet, you take a long, long step, and you step completely over the dry place, and land ankle deep in a puddle? You have had the experience? Yes? I thought so. Well, that is how it was. I really passed right by * the Knickerbocker, where they have a fine Grill, with good food, and ÷ where I have a favorite waiter; one you know who actually says * "Thanks" when you give him a tip, and otherwise treats you like a human being, rather than just a common customer. As I was saying, • I went right by the Knickerbocker, and went on and into Child's Restaurant, just hoping to have a quiet, lonesome little meal, with no chance of meeting any millionaire dentists who would insist on talking dentistry, or what they think is dentistry, when lo! And listen! What do you suppose? But let me tell you.

I HAD JUST received my two soft boiled eggs, and after removing the outer and inner peel, I was utilizing my strong right arm to mash the

65 Jan.



- . edible parts sufficiently so that I could mix a little butter with the
- yolks and whites commingled as it were, or as they were not, but as
- . every properly cooked soft boiled egg ought to commingle, when with-
- . out the slightest attempt at eaves-dropping on my part, there floated to
- * my ears across the fan-cooled atmosphere of that restaurant these
- sonorous words:

H H

"THE TROUBLE WITH the editor of 'Items of Interest' is that he thinks he knows it all!"

н н н

NOW, HONEST! FOLKS, Cross my heart! Hope to die! That is not true.

- There are just oodles of things I don't know, and one thing that I do
- * know, is that I don't know oodles of things. Now, just for instance,
- ❖ I don't know who made the war. But that isn't such crass ignorance,
- because very few people do know. But be that as it may, there are
- · also loads of things right in and about dentistry, that I do not know,
- . and would be glad to know.

OF COURSE I did not want to listen to that conversation, because you know

- * what the book says that listeners always hear about themselves. Still,
- . I must confess that I opened both ears and did listen. And it pro-
- ceeded thuswise.

H H H

"OH! I WOULD NOT say that exactly." This from Man No. Two. "I

- guess he knows a few things at that." "Well I guess that you miss
- ❖ your guess," said Man No. One. "For instance what does he know
- about mechanical dentistry? Have you seen anything about mechanical
 dentistry in that Around the Table talk. Yes, you have, Not."

the Table talk. Tes, you have, N

DON'T YOU SEE THE situation? Had hoped to dine alone, but could I do

- * it after that! Hardly. So I took up my egg, my slice of bread, and my
- napkin, and moved over to the other table. You can do that at Child's,
- * when you couldn't at Delmonico's without first asking the waiter's per-
- * mission. But at Child's we are very Democratic, or Cosmopolitan,
- * whichever it is. So as I say, I just moved over, and I broke right in on
- that conversation.

H H

"I AM NO SHERLOCK HOLMES," said I, "but I rather opine (opine is

- . so good, what?), I say I rather opine, that you gentlemen are interested
- . in mechanical dentistry. Is there any little problem therein that I might
- ❖ elucidate for you?" "And who might you be," asked Man No. One.
- * "Well," said I, "I might be the Queen of the Movies, but I am not. I
- * am merely the Editor of 'Items of Interest.'"

H H H

DO YOU KNOW I could see right away that they suspected that I had over-

- heard part of their talk, and Man No. Two hastened to interject: "We
- meant no offense by what we said." "Offense!" said I, "Why boys you
- ❖ could not offend me with a dynamite bomb. But really I used to polish
- * rubber plates once myself, and maybe I could give you a point or two."



"IF YOU REALLY THINK SO," said Man No. One, "go right on where

- you started. Tell us something about polishing plates; and what is the
- quickest way to get the plate thin. Do you use scrapers or files or
- sandpaper."

"WHY THAT IS EASY," said I. "You may not know it, but it is a fact that I served a sort of apprenticeship with Dr. Norman W. Kingsley,

- one of the greatest mechanical dentists of his day. Nowadays the same
- sort of a man is a prosthodontist, but he does not know any more in
- proportion to what he ought to know than Kingsley did. And I learned
- quite a few mechanical tricks from the Old Man. For example this very
- question of making a plate thin, and of polishing it. The best way to
- make a plate thin, is to make it thin. Don't make it thick and then
- scrape, file or sandpaper it for an hour. If you adopt that method
- some day you will scrape a hole through a plate, and then you can start
- right in and make it over again."

"BUT HOW DO YOU make it thin," persisted Man No. One.

Ħ Ħ

"USE THE THINNEST of wax, in waxing up. Don't be afraid to use it too

- thin, because your plate will be a little thicker than your wax in any
- event. So have your wax thin enough and your plate when vulcanized,
- will need no scraping. The same is true in regard to polishing. Always
- polish your plate before you vulcanize it."

"BUT HOW THE deuce can you do that," asked Man No. Two.

"SIMPLEST THING in the world," said I. "After waxing up to your satis-

- faction, use a blow pipe and pass the flame rapidly over the wax. This
- slightly melts the surface and when it congeals again, it will have a fairly
- good polish. When thoroughly cold, rub the surface of the wax with
- the ball of the thumb, and it will take a fine gloss. Then burnish tin
- foil over the wax and after vulcanization, and removing the actual ex-
- cess of rubber, which should have been forced into gates cut in the
- plaster, you should be able to take your plate direct to the polishing
- lathe without use of file or scraper.

"BUT IF THROUGH accident or lack of care a plate is a bit too thick, I will describe a method that was invented by Dr. J. Albert Kimball and

- placed on the market by him for a short time. He took some wooden
- mandrels, made to fit the lathe, and by revolving one in the lathe he
- would wrap around it, into a cone, a strip of sandpaper about an inch
- wide. These sandpaper cones were temporarily tied with a cord, and
- then removed from the mandrel and the edges smeared with glue.
- When the glue hardened he had cones of sandpaper which could be used
- on the lathe, and as the sand would wear off, a strip could be removed,
- exposing a fresh cutting surface. These sandpaper cones, made in dif-
- ferent grits were very useful in the laboratory. Some manufacturer
- ought to market them."



"YOU SPOKE of making the trial plate thin," said Man No. One. "Don't see how you can do that and use it to take your bite?"

"I DID NOT tell you," said I, "to make your trial plate thin, nor did I tell

you to use a thin wax plate for taking a bite. I told you to wax up your plate with thin wax, just before flasking. There are two ways out of your dilemma. Personally I always waxed up a thin plate, and vulcanized it without any teeth on it, before ever taking the bite. In fact I used this vulcanite plate for taking the bite. One great advantage of this method is that you discover before setting up your teeth, whether your impression and model were correct, and whether your plate will stay up. Remember that almost anyone can make a plate with a vacuum

- chamber in it that will adhere so tightly that the patient cannot pull it down. But unfortunately a patient does not pull on his teeth when
- chewing. Quite to the contrary, he pushes on the plate. And to test
- a plate you should do the same. Make a trial plate by vulcanizing it without teeth, try this in the mouth, and then with the index finger press
- upon every part of the plate, and if it can be dislodged, it is worthless.
- If it withstands such tests it will carry the teeth without disturbing
- the adhesion, provided, of course, the teeth are properly occluded. An
- improper occlusion will trip any plate."

"IF YOU PREFER to use a wax trial plate for taking the bite, or one made

of base-plate gutta-percha, then after the teeth are set up, and the · labio-buccal rim added and carved to form, this rim should be waxed fast to the model, so that the teeth cannot be disturbed by the next step. Then with a sharp knife, slightly warmed in the Bunsen flame, the entire palatal portion of the wax must be cut away. After this, a new palatal portion is added using wax of the thickness, or a

little thinner than you desire that the plate should be.

Ħ Ħ Ħ "WHERE THE FIRST and really the best method is used, after making the

plate without teeth, the teeth may be attached to this plate with wax,

which may then be replaced with rubber in a second vulcanization. As the plate is to be vulcanized a second time it is as well not to over vulcanize it the first time. By this method a pretty result may be had by making the plate of black or dark red rubber, and attaching the teeth with pink, leaving a slight margin of the dark rubber above the pink

- along the rim, for protection of the pink, which is never so strong as the red or black. Of course, as you know, the pink rubber may be
- bleached and the color improved by placing it in a tumbler of alcohol
- covered with a piece of glass and setting the same in the sun for a few

hours."

Ħ Ħ

"CAN YOU TELL me a good way to repair a broken rubber plate," asked

- ❖ Man No. Two. "I have a great many full upper's come back to me broken in half, and after vulcanization they break again. Then after
- two or three repairs the plate not only looks like a patch work quilt,
- but the rubber is as brittle as sealing wax."



"YES, I CAN GIVE you a point in repairing plates," said I, "which I am surprised is not more commonly utilized. I think that usually the two halves of the plate are waxed together, a model run, and then some of * the vulcanite is cut away on each side of the crack, and the rest of it roughened for a short distance, after which the parts are waxed up on * the model, flasked, packed and vulcanized. By this method you will ٠ note that the wax must be cleansed away from the part of the old * • rubber which is to be lapped by the new, and unless this is thoroughly well done the dirty surface of the old rubber does not unite well with the new. In any event it is a poor way of making a repair because the * old rubber, made thin, and then lapped by the new is never very strong. Whereas there is a method by which a plate after repair may be just as strong as a new plate."

H H

"TELL US ABOUT IT," said both men.

H H

"WHEN A FULL UPPER plate comes in broken in half, or nearly broken in two, the first step, of course, is to pour a model. Next the plate should be removed from the model and with a fine jeweler's saw the entire palatal portion should be cut away, the saw passing as near the ٠ teeth as possible. That portion which has been sawed out should then be replaced on the model, together with the parts carrying the teeth, * in their proper relative positions, and again fastened together with wax. The plate should then be flasked, and when the flask is opened the • palatal pieces are readily taken out and the little wax that was used easily removed with boiling water. But it is at this stage, and at a time when no more wax is needed, that a sharp clean bur is used in the * engine for thoroughly cutting and dovetailing into the old rubber, which is still attached to the teeth, and right into this freshly cut surface new rubber is at once packed. Rubber dissolved in chloroform may be smeared over the surface of the old rubber, but this is not necessary. If the surface is really clean when the new rubber is packed, there will be perfect union after vulcanization. In this way an entirely new palatal portion is obtained, and solidly anchored into a thick portion of the old rubber, instead of lapping a thin joint as is commonly done."

"BUT IF THE PATIENT could break the original plate," asked Man No.

Two, "why can't he break the repaired plate, even if, as you say, it is as

trong as it was before?"

"THE FIRST BREAK might have been an accident that may not recur,"

said I. "But there are patients, who, as you say, continually break

vulcanite plates through the center. If such a person cannot be per
suaded to have a gold plate, then there is still another method of over
coming the difficulty. Make a new plate as follows. After setting up

the teeth with plaster, take an impression of the six front teeth, the

plaster flowing over their labial surfaces, and slightly over the incisive

ends. When this impression is hard, remove the teeth from the wax,

and place them in the impression, of course, cleansed of all wax. Next

69 Jan.



- bend a piece of iridio-platinum wire of about 16 gauge, so that it will touch
- the pins of all six teeth. Attach the bar to the teeth with sticky wax,
- remove teeth and bar together and invest in your favorite soldering
- investment. When hard heat up slowly, but thoroughly, and solder the
- bar to each pin. When cold you will have your six front teeth soldered
- to an iridio-platinum bar, and in proper relation to one another. The
- teeth may be replaced on the model in proper position and when vul-
- canized into the plate the bar renders it almost unbreakable through the
- centre. A bar vulcanized in the same position, but not soldered to the
- teeth does not accomplish the same purpose. On the contrary it weakens
- rather than strengthens the plate."

- "AND NOW BOYS I must be going," said I. "Hereafter don't ever think
 - that I think that I know it all, because I don't. And don't think I have
 - told you all I know, because I haven't. I hope I shall meet you again.
 - . Good night."

- AS I WAS paying my check at the cashier's desk, one of the ways they have
 - of doing things at Child's, I heard Man No. One remark (soto voce I
 - think it was): "I don't see that he told us so much after all!"





James Cruman, D.D.S., EC.D.

Died at his home in Philadelphia, November 26th, Dr. James Truman. Dr. James Truman was born at Abington, near Philadelphia, November 22, 1826. When an infant his parents, George and Catherine L. Truman, returned to Philadelphia. The original founder of the family came from England with William Penn, and the Truman family lived in Philadelphia for many generations.

He studied dentistry with his father and graduated from the Philadelphia College of Dental Surgery in 1854. From 1855 to 1858 he practiced at Waterloo, a town in western New York, returning to Philadelphia in the latter year. In 1864 he was appointed Administrator in Chief of Operative Dentistry in the Pennsylvania College of Dentistry. Prior to this time the mechanical side of dentistry had received the greatest amount of attention, and Dr. Truman was one of the pioneers in the effort to elevate the general practice or what might be termed the medical aspect of dentistry to a higher plane. He made a special study of the teeth of inferior forms and finally presented an important paper on the subject of supplemental and supernumerary teeth.

He next turned his attention to the subject of bleaching of teeth, and finally gave the profession a process which has practically remained unchanged since 1868, when he first described his technique, with the exception that with the advent of newer agents a somewhat higher proportion of success is now possible.

He next announced a system of preparing cavities for the reception of fillings of cohesive gold with special attention to proper mechanical principles of retention and the correct formation for anchorage. This thesis appeared in the *Dental Times*.

He was elected to the chair of Dental Physiology and Operative Dentistry in the Pennsylvania College of Dental Surgery, and occupied the position from 1865 to 1876. During this period the question of the admission of women to a place in dentistry began to be agitated. Dr. Truman openly advocated the admission of women as students in the dental schools, and gave his views in a valedictory to the graduating class before a large audience in Musical Fund Hall, Philadelphia, in

71 Jan.



1866. This caused a sensation and much adverse criticism from other members of the faculty and from some of the dental profession. In 1869, at Saratoga, Dr. Truman introduced a resolution before the American Dental Association, asking that body to recommend "subordinate associations to admit to full membership any woman duly qualified." The resolution was promptly laid on the table, an action which did not surprise Dr. Truman, but the introduction of the resolution attracted considerable attention and undoubtedly was the initial impulse which finally resulted in the admission of women to the practice of dentistry.

During his connection with the Pennsylvania College of Dental Surgery, Dr. Truman became the editor of the *Dental Times*, retaining the position for four years.

His investigations in regard to the use of mallet force in conjunction with cohesive gold established the fact that the lead mallet was not equal to the steel mallet, and that the electro-magnetic mallet of Bonwell was superior to all others. He made extended experiments in regard to the use of tin as a filling material, trying various forms, such as roll tin, tin chipped from the block, etc., in an effort to determine the greatest amount of cohesion to be secured. He proved that the old methods were defective and claimed that the best results could be had by relying upon the natural cohesive properties of metal.

In 1876, in consequence of failing health, he moved to Frankfort, Germany, resigning from the Pennsylvania College of Dental Surgery. In 1877 he left Frankfort and established himself in Hanover. He attracted a rapidly increasing practice among the nobility and better class of people of that section. In 1880, however, because of the death of his wife, he left Germany and resumed practice in Philadelphia.

In 1877 the Pennsylvania College of Dental Surgery conferred upon him the honorary degree of D.D.S. In 1882 the Department of Dentistry of the University of Pennsylvania elected him Professor of Dental Pathology, Therapeutics and Materia Medica. In 1883 he was made Secretary of the Dental Department and subsequently Dean, which position he held until 1896, when he retired. In 1890 he assumed the editorship of the *International Dental Journal*, a magazine published by dentists in the interests of dentists. He was editor at the time when the publication of the journal ceased in 1895.

He was always a prominent figure when attending dental meetings and an aggressive leader in many important discussions. He contributed many original articles to the periodical literature and was one of the authors whose writings appeared in the "American Text Book of Operative Dentistry." He was active and honorary member of many dental associations and societies, and was one of the four who originated the



organization of the National Association of Dental Faculties. He occupied various offices in that body and was President for one year. He was the last President of the American Dental Association before the amalgamation of that body with the Southern Dental Association to form the present National Dental Association.

The University of Pennsylvania conferred upon him the honorary degree of LL.D.

William Ernest Walker, D.D.S., M.D.

Died at his home in New Orleans, November 21, 1914, Dr. Wm. Ernest Walker.

William Ernest Walker, D.D.S., M.D., was born March 3, 1868, in New Orleans, La. He was the son of J. R. Walker, D.D.S., who practiced dentistry in New Orleans up to the time of his death in 1887, and Jeanie Mort, known to the profession as "Mrs. M. W. J.," over which nom de plume she contributed many articles to the various dental journals, particularly a department which she originated and called "Practical Points," in Items of Interest. She died in 1907.

William Ernest Walker attended the public schools of New Orleans and studied dentistry in his father's office, later graduating with high honor from Baltimore College of Dental Surgery in 1889. He opened his first office at Bay St., Louis, Miss., later moving to Pass Christian, Miss., where he enjoyed a large practice. While practicing at Pass Christian he filled the chair of Clinical Dentistry at the Dental Department of the Southern Medical College in Atlanta, Ga., at the same time taking a medical course.

After two years spent in Atlanta he became connected with the Baltimore College of Physicians and Surgeons, occupying the chair of Operative Dentistry while completing his medical studies. After obtaining his M.D. degree he resigned his professorship in order to devote all his time to practice.

Becoming more and more interested in orthodontia he finally moved to New Orleans about twelve years ago giving up the general practice of dentistry and limiting his practice to orthodontia and facial orthopedia, in which specialty he was remarkably successful.

During his first few years of orthodontic practice in New Orleans. he was Dean of the New Orleans College of Dentistry where he also taught orthodontia. His death was quite unexpected, the result of uremia, following an illness of one week.

He is survived by two sisters, Mrs. S. A. Allis of Leesville, La.,



and Mrs. D. P. Allen of Beaumont, Tex., and one brother, J. Mort Walker, an officer of the Commercial Germania Trust and Savings Bank of New Orleans.

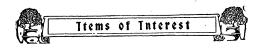
At the time of his death he was Secretary and Treasurer of the American Society of Orthodontists, member of Delta Sigma Delta Fraternity and numerous local, State and National Dental and Medical Associations. He was first to point out the anatomical fact of the downward and forward movement of the condyles and invented the first anatomical articulator which reproduced the motion of the mandible, as also a number of appliances which he used in the practice of his chosen specialty.

Chomas Edward Curner, D.D.S.

Thomas Edward Turner, D.D.S., was born at Carrollton, Mo., June 22, 1868. He was educated in the public school and high school of that city and was a clerk in the Missouri Legislature at Jefferson City for several years.

He began the study of dentistry in the office of Dr. J. S. Hassell, of Carrollton, entered the Missouri Dental College, now Washington University Dental School, in September, 1888, graduating in the class of 1890. Immediately after graduating he located in Neosha, Mo., for several years, and on September 21, 1892 he was married in that city to Miss Mary Lee Moss, who survives him. He came to St. Louis about 1896 and entered into partnership with Dr. Holmes; this partnership continued until 1900, when it was dissolved, Dr. Turner continuing in practice alone until November 14, 1914, when he was accidentally killed while cranking his automobile.

Soon after graduation he became a member of the Missouri State Dental Association and was elected Vice-President in 1914. After moving to this city he connected himself with the St. Louis Dental Society and was its President in 1903. In 1904, Dr. Turner was appointed a member of the Missouri State Board of Dental Examiners, which position he retained to the time of his death. He enjoyed the distinction of being the only Democrat reappointed on the Board by a Republican Governor. His work on the Board was such that through his efforts St. Louis, the fourth largest city in the United States, enjoys the distinction of being freer from dental quackery than any other city of near its size in the country. He was especially active in all the meetings of the National Association of Dental Examiners and the National Dental Association during the last ten years. He was President of the National



Association of Dental Examiners in 1912, and Third Vice-President of the National Dental Association at the time of his death. He was a member of the Masonic Fraternity, being a Past Master of Rose Hill

Lodge No. 550.

The work of Dr. Turner since he located in this city has been of such a character as to attract the attention of his profession, not only in his own State, but throughout the country. In the death of Dr. Turner the profession has sustained a loss that will be hard to fill, just how hard, only those who knew him best and loved him most can tell. His professional ability and his modest Christian character endeared him to a host of friends, who mourn most sincerely with his bereaved widow and family. May we all

"So live that when thy summons comes to join
The innumerable caravan, which moves
To that mysterious realm, where each shall take
His chamber in the silent halls of death;
Thou go not like the quarry slave at night
Scourged to his dungeon, but sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the draperies of his couch
About him and lies down to pleasant dreams."

J. H. KENNERLY.

Dr. J. Morgan Howe.

Died at his home in New York City, on Friday, November 13, 1914, Dr. J. Morgan Howe.

The family of Dr. Morgan Howe lived in Sudbury, Mass., for six generations. His grandfather was Dr. Bezeleel Howe who served as a Captain in the Guard of General George Washington throughout the War of the Revolution. His father was Dr. John Moffitt Howe, a dentist who practiced in New York City.

- Dr. J. Morgan Howe was born October 19, 1844 in New York City. In 1853 his father moved to Passaic, N. J., practicing in that city until 1867. In addition to the practice of his profession, he interested himself in educational matters, and in 1865 was made a trustee of the State Normal Schools, in New Jersey, an office which he held for twenty years.
- Dr. J. Morgan Howe studied his profession with his father. In 1867 he opened an office in 17th Street, New York City. He received the degree of M.D.S. from the New York State Board and the degree of M.D. from the New York Homeopathic Medical College in 1879. In



1879 he moved his office to 34 W. 35th Street, and six years later to West 47th Street, where he resided up to the time of his death.

He became a member of the Odontological Society in 1879 and for several years was Corresponding Secretary. Later was elected Vice-President and then President. He was one of the Charter Members of the New York Institute of Stomatology and three times elected President. He was a member of the Quill Club from 1895 to 1913.

In 1866 he married Miss Emma Rowe of Passaic, N. J., who died in 1904. In 1911 he married Miss Payne, who survives him. He leaves three daughters and one son by his first wife.

During the latter years of his life he had charge of St. Bartholomew's Clinic, which he had organized. He was a firm believer in the strictest adherence to the code of ethics, and therefore an ardent advocate of what is known as independent journalism. For similar reasons he was violently opposed to patents and to the use of nostrums or secret formulæ. He did considerable scientific investigation and was one of the prime movers in the research movement started by the Institute of Stomatology and now continued by the First District Dental Society, into which the Institute has been merged.





National Society Meetings.

AMERICAN INSTITUTE OF DENTAL TEACHERS, Ann Arbor, Mich., January 26-28, 1915.

Secretary, Dr. J. F. Biddle, 517 Arch St., N. S., Pittsburgh, Pa.

NATIONAL ASSOCIATION OF DENTAL FACULTIES, Ann Arbor, Mich., Jan. 25-26, 1915.

Secretary, Dr. C. C. Allen, 10th & Troost, Kansas City, Mo.

Panama-Pacific Dental Congress, San Francisco, Cal., September, 1915.

Secretary, Dr. Arthur M. Flood, 240 Stockton St., San Francisco, Cal.

State Society Meetings.

ALABAMA DENTAL ASSOCIATION, Montgomery, Ala., April 13, 1915. Secretary, Dr. J. A. Blue, Birmingham, Ala.

ARIZONA STATE DENTAL SOCIETY, date and place will be announced later. Secretary, Dr. J. L. O'Connell, Phoenix, Arizona.

ARKANSAS STATE DENTAL ASSOCIATION, date and place will be announced later.

Secretary, Dr. W. B. Dormon, Nashville, Ark.

CONNECTICUT STATE DENTAL ASSOCIATION, Hartford, Conn., April 20-22, 1915.

Secretary, Dr. E. R. Bryant, New Haven, Conn.

FLORIDA STATE DENTAL SOCIETY, date and place will be announced later.

Secretary, Dr. Alice P. Butler, Gainesville, Fla.

77

Jan,

ILLINOIS STATE DENTAL SOCIETY, Peoria, III., May 11-14, 1915. Secretary, Dr. Henry L. Whipple, Quincy, III.

INDIANA STATE DENTAL ASSOCIATION, Indianapolis, Ind., May 18-20, 1915.

Secretary, Dr. A. R. Ross, Lafayette, Ind.

IOWA STATE DENTAL SOCIETY, Waterloo, Ia., May 4-6, 1915.

Secretary, Dr. C. M. Kennedy, Des Moines, Iowa.

MARYLAND STATE DENTAL ASSOCIATION, Baltimore, Md., June 11-12, 1915.

Secretary, Dr. F. F. Drew, 701 N. Howard St., Baltimore, Md.

MASSACHUSETTS DENTAL SOCIETY, Boston, Mass., May 5-7, 1915. Secretary, Dr. A. H. St. C. Chase, Everett, Mass.

MINNESOTA STATE DENTAL ASSOCIATION, date and place will be announced later.

Secretary, Dr. Max E. Ernst, 614 Lowry Bldg., St. Paul, Minn.

MISSOURI STATE DENTAL ASSOCIATION, Golden Jubilee Meeting, Jefferson City, June 10-12, 1915.

Secretary, Dr. S. C. A. Pubey, New York Life Bldg., Kansas City, Mo.

MISSISSIPPI DENTAL ASSOCIATION, Jackson, Miss., April 20-22, 1915. Secretary, Dr. M. B. Varnado, Osyka, Miss.

Montana State Dental Society, date and place will be announced later.

Secretary, Dr. F. W. Adams, Chicago Block, Billings, Montana.

New Hampshire State Dental Society, date and place will be announced later.

Secretary, Dr. Louis I. Moulton, 15 No. Main St., Concord, N. H.

New Jersey State Dental Society, date and place will be announced later.

Secretary, Dr. John C. Forsyth, 430 E. State St., Trenton, N. J.

NEW MEXICO STATE DENTAL SOCIETY, Albuquerque, N. M., date will be announced later.

Secretary, Dr. J. J. Clarke, Artesia, N. M.

New York State Dental Society, Albany, N. Y., May 13-15, 1915. Secretary, Dr. A. P. Burkhart, 52 Genesee St., Auburn N. Y.

NORTH CAROLINA DENTAL SOCIETY, Wrightsville Beach, N. C., June 23-25, 1915.

Secretary, Dr. R. M. Squires, Wake Forest, N. C.

OKLAHOMA STATE DENTAL SOCIETY, Oklahoma City, Oklahoma, March 15-19, 1915.

Secretary, Dr. C. R. Lawrence, Enid, Oklahoma.



Pennsylvania State Dental Society, Reading, Pa., June 22-24, 1915. Secretary, Dr. L. M. Weaver, Philadelphia, Pa.

RHODE ISLAND DENTAL SOCIETY, Providence, R. I., Jan. 14, 1915.

Secretary, Dr. Jas. E. Heap, 425 Grosvenor Bldg., Providence, R. I. South Carolina State Dental Association, Columbia, S. C., April 13-16, 1915.

Secretary, Dr. Ernest C. Dye, Greenville, S. C.

Tennessee State Dental Association, Sewanee, Tenn., June 24-26, 1915.

Secretary, Dr. C. Osborn Rhea, 625½ Church St., Nashville, Tenn. Texas State Dental Association, Galveston, Texas, May 19-22, 1915. Secretary, Dr. W. C. Talbot, Fort Worth, Texas.

UTAH STATE DENTAL SOCIETY will meet in San Francisco, Cal., during the Panama-Pacific Dental Congress in August, 1915.

Secretary, Dr. E. C. Fairweather, Boston Bldg., Salt Lake City, Utah. VERMONT STATE DENTAL SOCIETY, May 19-21, 1915.

Secretary, Dr. P. M. Williams, Rutland, Vt.

W. VIRGINIA STATE DENTAL SOCIETY, Wheeling, W. Va., April 14-16, 1915.

Secretary, Dr. J. W. Parsons, Huntington, W. Va.

WISCONSIN STATE DENTAL SOCIETY, Oconomowoc, Wis., July 13-15, 1915. Secretary, Dr. O. G. Krause, 1209 Wells Bldg., Milwaukee, Wis.

Chicago Dental Society.

The annual mid-winter meeting of the Chicago Dental Society will be held in the Hotel La Salle, January 29 and 30, 1915.

Friday, January 29th, Dr. Robert B. Preble will read a paper entitled "Diagnosis of Systemic Disturbances Due to Oral Infection." Dr. Preble is a physician and one of the leading diagnosticians in America. The paper will be of practical interest to members of both the medical and dental profession. On the same date, Dr. Elmer S. Best will present a paper entitled "The Surgical Treatment of Pulp Canals as a Prevention of Systemic Disturbances." Dr. Best has made a special study of this phase of the subject and will give us something revolutionary in character.

Saturday, January 30th, will be devoted to clinics. The clinicians will be so arranged that one can see to the best advantage the clinic in which he is especially interested. The meeting will close with a banquet Saturday evening, at which there will be speakers of national reputation and other attractions of equal interest to the audience.

The exhibitors' display room will be open during the entire meeting.

T. L. Grisamore, President.

P. B. D. Idler, Secretary.

Minneapolis District Dental Society.

The Minneapolis District Dental Society will hold its annual meeting on February 11-12-13, 1915, in the City Hall, Minneapolis. The first two days will be devoted to progressive clinics, papers and exhibits, and the third day to an office-to-office clinic.

Everything points to a most successful meeting, so reserve the time now.

Dr. HARRY W. NELSON, Secretary.

Barvard Dental Hlumni Association.

A special meeting of the Harvard Dental Alumni Association will be held at the Harvard Union, corner of Harvard and Quincy Streets, Cambridge, Mass., on Thursday, January 14th, at six o'clock. Dinner will be served at seven o'clock; tickets \$1.50 each.

Everyone of the graduates of the school is cordially invited to attend, whether or not he is a member of the association. After dinner we will hear something about Harvard athletics, and we have the promise of the use of the reel of moving pictures of the last Yale game.

HAROLD DEW. CROSS, Pres.

FRANK T. TAYLOR, Sec.

Chattanooga Dental Society.

The annual business meeting of the Chattanooga (Tennessee) Dental Society was held recently, during which the following officers were elected:

Président—Dr. William F. Stone; Vice-president—Dr. N. C. Hunt; Secretary—Dr. I. R. Stone; Treasurer—Dr. George W. Wagner.

A paper read by Dr. R. S. Henry on vaccine therapy in oral infections provoked much interesting discussion.

The society is planning to give semi-annual banquets to which dentists of national reputation will be invited to deliver scientific addresses. This organization, like all others in the "Dynamo of Dixie," is characterized by the qualities of life and progressiveness, the latter being demonstrated by the members' desire to keep in touch with the latest thought and discoveries in connection with their profession, by hearing the principal exponents thereof in their own midst. Incidentally, they anticipate little trouble in getting the men they desire to hear, to visit Chattanooga, which is a very attractive place to visit on account of its historic and scenic wonders, such as Lookout Mountain, Chickamauga Park, Missionary Ridge, Signal Mountain, beautifully winding and picturesque Tennessee River—everyone of them in some way identified with stirring events of the Civil War.